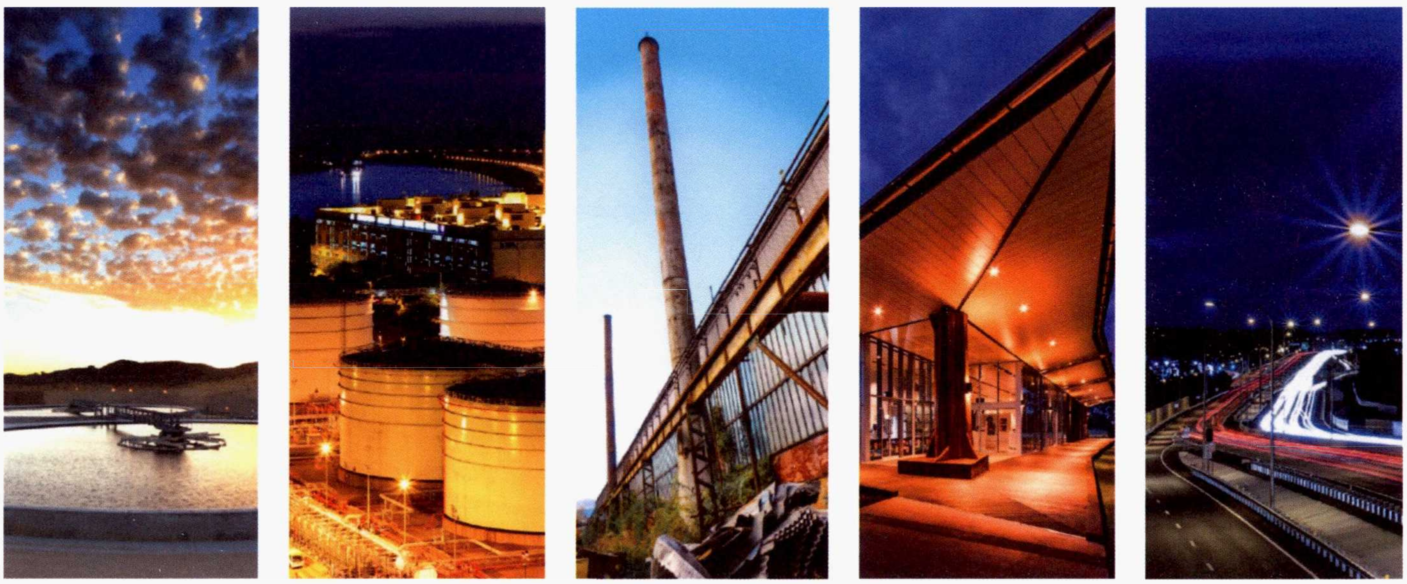


Technical Review of the Preliminary Assessment Report for the St. Louis Park Solvent Plume

6714 Walker Street Site
St. Louis Park, Minnesota

Daikin Applied Americas Inc. and Super Radiator Coils, LP

GHD | 1801 Old Highway 8 Northwest Suite 114 St. Paul Minnesota 55112

088751 | Report No 6 | March 03 2017

Table of Contents

Figure Index

Appendix Index

1. Introduction

GHD Services, Inc. (GHD) reviewed the Preliminary Assessment (PA) Report for the St. Louis Park Solvent Plume, St. Louis Park, Hennepin County, Minnesota. The PA Report was prepared and submitted by the Minnesota Pollution Control Agency (MPCA) for the United States Environmental Protection Agency (EPA). The PA Report is dated December 17, 2015. The PA Report was prepared pursuant to a Cooperative Agreement between the MPCA and the EPA under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

As discussed in this technical report, GHD questions the assertions presented by the MPCA in the PA Report, because it:

- Lacks technical evidence to support a number of assertions and conclusions, among them whether the alleged SLP Solvent Plume is really a "plume" as that term is generally understood in hydrogeological terms.
- Ignores or misrepresents potential groundwater contaminant sources that may be contributing to the volatile organic compound (VOC) plume
- Fails to investigate other identified sources with contamination and lacks evidence to support the 6714 Walker Street site as a source of VOC contamination beyond the immediate area of 6714 Walker Street
- Lacks a conceptual site model
- Fails to connect municipal well contamination to the MPCA-identified “main source area” and does not incorporate critical information from other regional groundwater studies, such as WHPA modeling.
- Fails to recognize the presence of other compounds as contaminants of concern
- Incorrectly characterizes potential potable well receptors

This report provides a brief summary of the PA Report and its conclusions, provides background information on the St. Louis Park (SLP) Solvent Plume, and discusses concerns with the PA Report that are highlighted in the above bullets.

2. PA Report Summary

The EPA approved MPCA to conduct a PA for the SLP Solvent Plume based on the results of a pre-CERCLIS Screening Worksheet that was prepared by the MPCA in 2014. The purpose of the PA was to determine if the SLP Solvent Plume poses a risk to human health and the environment. Another purpose was whether the site should be considered for further Superfund action. The PA Report contains site background information, a discussion of the MPCA's Site Assessment (SA) activities, an exposure pathway assessment, along with figures, tables, references, and appendices. A copy of the PA Report is presented in Appendix A of this report.

The PA Report provides SLP Solvent Plume background information including a site description, area hydrogeology, and a summary of previous regional investigations that lead to the identification of the SLP Solvent Plume, including the sampling of numerous monitoring and remediation wells at the Reilly Tar Superfund site (EPA ID MND980609804) (STS, 2007) (AECOM, 2013).

According to the PA Report, the SLP Solvent Plume, as defined by the MPCA, encompasses an approximate area 3.16 square miles and multiple groundwater aquifers. The defined SLP Solvent Plume boundary axis is generally oriented northwest to southeast. The SLP Solvent Plume starts at the Reilly Tar Superfund site and extends in the general direction of regional groundwater flow to southeast. The SLP Solvent Plume includes portions of the cities of SLP and Edina, Minnesota. The general outline of the SLP Solvent Plume is presented on Figure 1 of this report. Several municipal water supply wells are located within the SLP Solvent Plume area, including SLP municipal wells SLP4, SLP6, and Edina municipal wells E2, E7, and E15. These municipal wells are also shown on Figure 1.

The boundaries of the SLP Solvent Plume are based on environmental investigations that began in 2004 when vinyl chloride (VC) was detected in Edina municipal well E7 above the federal maximum contaminant level (MCL) of 2 micrograms per liter (µg/L), which lead to the placement of the Edina municipal wells on the state Permanent List of Priorities (PLP) in July 2006 as site number SR358. The PA Report specifically lists eight investigations that were completed between 2004 and 2013 that documented the presence of chlorinated VOCs in multiple aquifers including (from top to bottom): Glacial Drift, Platteville Limestone, St. Peter Sandstone, Prairie du Chien Group, and the Jordan Sandstone. The combined Prairie du Chien Group and the Jordan Sandstone aquifers (OPCJ) is the primary drinking water aquifer in the Twin Cities metropolitan area.

The PA Report summarizes the MPCA's SA field investigation results and focuses on what the MPCA alleges to be the "main source area" for chlorinated VOCs, near the intersection of Louisiana Avenue and Highway 7 in SLP. The SA investigated 16 sites (based on current or past operations) in this area, which included: Ace Supply, Byrant Graphics, Care Cleaners, Eclipse Electric, EPS Printing, Family Digest, former Flame Metals, Kaufenberg, Lighting Plastics, Minnvalco, National Lead Dump, Pampered Pooch, Professional Instruments, former Super Radiator Coils Tube Fabrication, Tall Sales, and Techna Graphics. The locations of these sites are shown on Figure 2 of this report, which is based on Figure 2 of the PA Report.

From these SA investigations, the MPCA lists five potential chlorinated VOC sources within this area, which are located near the intersection of Walker Street and Lake Street.: 6714 Walker Street (Tall Sales, former Super Radiator Coils building), 3356 Gorham Avenue (former Super Radiator Coil Tube Fabrication building), 6512 Walker Street (Eclipse Electric), 6518 Walker Street (former EPS Printing building), and 6528 W. Lake Street (Care Cleaners building). The PA Report does not explain why the remaining sites were eliminated as potential VOC sources or identify the determining factors to be listed as a potential source. For reasons expressed later in Section 3 of this report, the removal or retention of certain properties is not supported by the technical data.

The PA Report includes a preliminary exposure pathway assessment for soil, surface water, soil vapor, groundwater, and drinking water, which includes the identification of municipal and potential domestic (private and commercial) supply wells within a designated radius, but ignores groundwater flow direction. The pathway assessment concludes that potential risk via ingestion is fairly high based on 254 domestic supply wells within a one mile radius. However, the PA Report does not confirm if these locations actually use their wells for potable water by comparing the well locations with municipal water records.

The PA Report concludes potential VOC sources are present and that measured concentrations indicate that dense non-aqueous phase liquids (DNAPLs) may be present underneath the suspected source areas. The PA Report concludes that additional investigation is necessary to determine the extent and magnitude of the releases at these potential source areas and that there is insufficient data at this time to characterize the potential for human health or environmental exposure.

3. Critique of the PA Report

This section presents a technical critique of the PA Report. This critique identifies omissions, inconsistencies, and deficiencies that question the validity of the conclusions presented in the PA Report. This critique focuses on the following major issues in the PA Report:

- Lacks technical evidence to support a number of assertions and conclusions, among them whether the alleged SLP Solvent Plume is really a "plume" as that term is generally understood in hydrogeological terms.
- Ignores or mispresents potential groundwater contaminant sources that may be contributing to the VOC plume
- Fails to investigate other identified sources with contamination and lacks evidence to support the 6714 Walker Street site as a source of VOC contamination beyond the immediate area of 6714 Walker Street
- Lacks a conceptual site model
- Fails to connect municipal well contamination to the MPCA-identified “main source area” and does not incorporate critical information from other regional groundwater studies, such as WHPA modeling.
- Fails to recognize the presence of other compounds as contaminants of concern
- Incorrectly characterizes potential potable well receptors

3.1 The PA Report Lacks Supporting Technical Evidence

The PA Report makes the following statement about the SLP Solvent Plume and the Edina Municipal Well PLP site: “*The main source for the chlorinated VOCs was centered on an area within the City of St. Louis Park, most notably in an area near the intersection of Highway 7 and Louisiana Avenue.*” (see PA Report; Section 2.4, second paragraph). The PA Report states in the same paragraph that *“This conclusion was supported by water data indicating that during the spring, summer, and fall months, heavy pumping from the Edina municipal wells creates a hydraulic gradient causing contaminated groundwater in the OPCJ aquifer to migrate from St. Louis Park toward the Edina wells.”*

The above PA Report quote appears to be taken from a seven-year-old data report (AECOM, 2008; Section 4, first bullet) which contained the following:

"The accumulated VOC data indicate that the main source for chlorinated VOCs is the area near the intersection of Highway 7 and Louisiana Avenue, within the limits of the City of St. Louis Park (SLP Source Area). This conclusion is additionally supported by the continuous water level data collected at the Edina OPCJ Test Well, Meadowbrook Golf Course Well and ED-7 (STS, December 31, 2008) .. This data indicates that during the spring, summer and fall months, heavy pumping from the Edina municipal wells creates a hydraulic gradient inducing the contaminated OPCJ groundwater to migrate from the St. Louis Park area toward the Edina wells."

The AECOM 2008 Report makes the above "observation" without providing the evidence to support this opinion. In fact, no specific reference or explanation is provided to support this important statement.

In Section 2.4, the PA Report references eight documents prepared by STS and AECOM between 2004 and 2013. The eight documents referenced by the MPCA focused on regional groundwater sampling data (AECOM, 2008, 2010, and 2013), soil vapor investigation results (STS/AECOM, 2007), investigation of multiple chlorinated VOC sources (STS, 2006 and AECOM, 2009), and Edina municipal well E7 studies (STS, 2004 and STS, 2005). MPCA provided GHD with six of the eight referenced documents, excluding the two Edina municipal well E7 studies (STS, 2004 and STS, 2005). A review of the six documents made available by the MPCA does not provide a coherent explanation to support the MPCA's statement regarding contaminant migration from the "main source area". For example, none of the six available STS and AECOM documents present data on groundwater flow or hydraulic gradients that would demonstrate a connection from the chlorinated VOC main source to Edina municipal well E7.

To support such a statement, it would require a substantial remedial investigation effort and groundwater flow and transport modeling to account for heterogeneous (i.e., multi-aquifer) hydrogeologic conditions, multiple groundwater pumping centers, and multiple potential groundwater contaminant sources. A review of the available documents does not provide a thorough, cohesive discussion with supporting lines of evidence that connects the alleged "main source area" to the Edina wells. As for the two Edina municipal well studies (STS, 2004 and STS, 2005), it is unlikely, given their subject title and reporting dates, that these two reports would have provided evidence connecting the "main source area" to the Edina wells.

The investigative efforts performed by the MPCA have relied on existing and former water supply wells and monitoring wells associated with the Reilly Tar Superfund site. The last comprehensive groundwater monitoring program (AECOM, 2013) relied on 37 wells, which includes 7 multi-aquifer municipal wells to define the nature and extent of VOC contamination in 5 aquifers within a 3 square mile area. The 37 sampled wells are an inadequate amount of monitoring points to characterize a large plume that includes five distinct aquifers. To our knowledge, no new monitoring wells were installed to support this significant conclusion of the MPCA's multi-phased SLP Solvent Plume investigation that the Plume's contamination originates in the MPCA-defined "SLP Source Area ". New monitoring wells would be necessary to confirm groundwater flow direction and flow rates in the various aquifer units, to confirm groundwater flows from the Drift aquifer to the deeper bedrock aquifers, and to verify the hydraulic connection between the Drift aquifer and the much deeper

OPCJ aquifer, which are hydraulically separated by two known aquitards – the Glenwood Shale and the basal St. Peter Sandstone.

The evidence cited in the PA Report to support main source location of chlorinated VOCs in the MPCA-defined "SLP Source Area" is hydraulic gradient data from the Edina municipal wells (see PA Report; Section 2.4, second paragraph). Again, no specific reference is cited for this statement. No groundwater modeling data are cited to support this statement. The PA Report does not present or provide evidence to explain how groundwater from the alleged "main source area" migrated from the Drift aquifer, bypassing two aquitards, and into the OPCJ aquifer system. The PA also does not explain how the VC bypassed the operating SLP municipal wells to reach Edina municipal well E7, which is a seasonal-operating municipal well (Sourcewater, 2013). This convoluted pathway requires groundwater to move perpendicular to the regional groundwater flow direction, which is to the east-south east (Balaban, 1989)

This type of conclusion should be supported by a groundwater flow model in order to be technically sound. Recent groundwater models do exist for the Reilly Tar Superfund site and Well Head Protection Areas (WHPA) for the cities of SLP (Sourcewater, 2015) and Edina (Sourcewater, 2013). These WHPA models provide important information regarding groundwater flow patterns, particle tracking, identification of potential contaminant sources, and interaction with other groundwater pumping sources. Groundwater flow models evaluate the influence of pumping wells, the interaction between aquifers, and groundwater capture areas created by pumping wells. The Reilly Tar and WHPA modeling documents should have been reviewed and considered while conducting the PA; but they were not referenced and there is no indication the MPCA utilized information from these documents for their PA Report.

In conjunction with flow modeling, contaminant transport modeling is a necessary component to track the SLP Solvent Plume migration pattern. VC is the primary compound of concern to the municipal well fields because it exceeded the regulatory standard; although other compounds of concern were identified in SLP municipal wells in 2015 (see Section 3.6 of this report). VC can be a biodegradation daughter byproduct of various chlorinated solvents, including tetrachloroethene (PCE), trichloroethene (TCE), and 1,1,1-trichlorethane (111TCA). VC should be evaluated by collecting monitored natural attenuation (MNA) data. MNA data are used to calculate biodegradation rates, characterize the groundwater chemistry, and determine sustainability of in-situ remediation processes. MNA data are critical to understand plume migration rates, distances, and travel times. In fact, the EPA has MNA guidance (USEPA, 2011a) that needs to be followed to characterize degradation of chlorinated solvents. The PA Report does not cite or follow USEPA guidance on MNA, which would be the expected industry practice for this situation.

3.2 The PA Report Ignores or Misrepresents Potential Groundwater Contaminant Sources

The PA Report ignores potentially significant contributors to the regional groundwater contamination and appears to selectively identify other sources based on limited data. In 2005, after the Edina municipal well E7 contamination was found, the MPCA began investigating the possible source(s) of chlorinated VOCs near the Walker Street and Gorham Avenue area (STS, 2006). The MPCA utilized existing Reilly Tar Superfund site monitoring wells to sample for chlorinated VOCs and documented large plumes present in multiple aquifers primarily found east of Louisiana Ave and north and south of Highway 7.

The PA Report identifies multiple water supply wells with historic (between 2004 and 2013) data showing chlorinated VOCs above state and/or federal regulatory health standards (e.g., MCLs). The PA Report lists several deep aquifer wells that are located outside the alleged "main source area" (see PA Report; Section 2.4, third paragraph). These deep aquifer wells include two Reilly Tar wells (W23 and W105), Hopkins municipal well H6, and Edina municipal well E13. The presence of chlorinated VOCs in these wells cannot be attributed to the alleged "main source area" because these wells are geographically located upgradient from the alleged "main source area". In addition, the PA Report fails to recognize potential contaminant sources identified near existing municipal wells that have been documented in other reports (Sourcewater, 2013). The PA Report should acknowledge the presence of these chlorinated VOCs in the above four upgradient wells is attributed to other, yet-to-be-characterized contaminant source areas as well as potential contaminant sources located near municipal wells. The Reilly Tar Superfund site is clearly one of those sites that deserves further investigation.

Finally, the PA Report does not cite sufficient technical information to establish that there is a "groundwater plume" in the classic sense of that term. The classic and generally understood definition (Environmental Engineering Dictionary) of a groundwater plume is:

> ***A volume of contaminated groundwater that extends downward and outward from a specific source; the shape and movement of the mass of the contaminated water is affected by the local geology, materials present in the plume, and the flow characteristics of the area groundwater.***

The data indicate a fairly widespread number of locations where chlorinated solvents or their breakdown products are found both within <u>and</u> outside the alleged SLP Solvent Plume area. These results could easily indicate a variety of scattered VOC sources over a large area, rather than a volume of water contaminated by a specific source. Detection of solvents in urban groundwater is now commonplace in the United States and does not, by itself, suggest the existence of a specific "plume."

3.2.1 The PA Report Ignores Likely Contributions from the Reilly Tar Superfund Site

The Reilly Tar Superfund site is located at the area of origin of the alleged SLP Solvent Plume (see Figure 1 of this report). The Reilly Tar site became a Superfund site in 1983 and is a significant source of polynuclear aromatic hydrocarbon (PAH) groundwater contamination. Reilly Tar is the only source that has been demonstrated to cause contamination of numerous municipal wells, such as SLP municipal wells SLP4, SLP10, and SLP15 (USEPA, 2011b). The fact that PAHs have migrated from the Reilly Tar Superfund site to municipal wells in the past strongly suggests the same potential VOCs migration along the same pathway exists here. However, as part of the ongoing investigation and long term groundwater monitoring process, the MPCA has selectively monitored the Reilly Tar Superfund site wells only for certain chemicals (e.g., PAHs) and has excluded monitoring for chlorinated VOCs. The MPCA has failed to monitor for chlorinated VOCs despite the fact that they have been found in existing on-site Reilly Tar Superfund site wells and groundwater remediation wells.

In fact, there are detections of VOCs in monitoring wells *upgradient* of the area MPCA identifies as the "main source area" and the Reilly Tar Superfund site itself. Reilly Tar used large vessels, piping, heating units and chemical manufacturing equipment that would have needed to be cleaned. Yet Reilly Tar was never truly investigated for the presence of chlorinated solvents in groundwater or if these solvents were used at Reilly Tar. If solvents that can degrade into VC were disposed in the Reilly Tar deep wells (e.g., W23, as discussed below), they would have undergone anaerobic breakdown due to the chemistry of the other materials (e.g., petroleum hydrocarbons) also disposed in the deep wells. Once disposed in the deep wells and introduced to groundwater, the degraded solvents would have the capacity to travel significant distances over time in the deeper municipal aquifers, because Reilly Tar and other companies used these disposal wells for decades before it came to the EPA's attention.

The Reilly Tar Superfund site is documented to have had two deep wells (W23 and W105) that penetrated into the drinking water supply aquifers of SLP and surrounding communities, such as Edina (USEPA, 2011b). These two Reilly Tar wells with VOCs are of particular significance because these wells are located upgradient of the alleged "main source area," including the 6714 Walker Street site (see Figure 2 of this report). Both W23 (Republic Creosote Deep Well) and W105 (Minnesota Sugar Beet Well) were constructed with multiple well casings over 100 years ago. Given the age and technology at the time of installation, these wells likely created conduits between multiple aquifers. In fact, AECOM states that W23 was a conduit for VOC contamination into the deeper OPCJ aquifer (AECOM, 2008; Section 4.0, second bullet).

Well W23 is a deep multi-aquifer well with an open borehole that extends from 373 feet to 909 feet below ground surface (bgs) (see PA Report; Table 3) and includes Jordan Sandstone, Wonewoc Sandstone (i.e., Ironton and Galesville Sandstones) and the Mount Simon Sandstone, which are all used for municipal water supply in the Twin Cities metropolitan area, including SLP and Edina. It was reported by the EPA that W23 was used as a disposal well by Reilly Tar (USEPA, 2011b). As part of the groundwater remedial action, W23 was cleaned out of approximately 100 feet of coal tar and converted to a remediation well. W23 is used for groundwater containment at the Reilly Tar Superfund site and pumps at a rate of 50 gallons per minute (gpm) from the OPCJ Aquifer (USEPA, 2011b).

Well W105 is also a former supply well that was built before Reilly Tar (i.e., Republic Creosote) took over the property. Similar to W23, W105 was constructed in 1908 and is also a multi-aquifer well with an open borehole that extends to 950 feet bgs (see PA Report; Table 3) and very likely cross connects several aquifers. W105 was used as a remediation well for the Wonewoc Sandstone until 1991 and then converted to a monitoring well (USEPA, 2011b).

Wells W23 and W105 have been monitored on multiple occasions for chlorinated VOCs since 2004.

Well W23 was sampled in December 2004, May 2006, May 2007, May 2008, and May 2013 (AECOM, 2013; Table 4). Chlorinated ethenes (e.g., TCE, 1,1-dichloroethene (11DCE), cis-1,2-dichlorethene (C12DCE), trans-1,2-dichloroethene (T12DCE), and VC) were detected in the samples collected from W23, with total chlorinated ethene concentrations ranging from 47.0 µg/L to 108.9 µg/L. Chlorinated ethene analytical results for W23 are summarized below.

W23 Chlorinated Ethene Results (AECOM, 2013; Table 4)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
12/9/2004	<0.2 µg/L (<0.2 µg/L)	1.2 µg/L (1.2 µg/L)	<0.5 µg/L (<0.5 µg/L)	42 µg/L (43 µg/L)	2.4 µg/L (2.5 µg/L)	4.4 µg/L (4.8 µg/L)
5/1/2006	<1.0 µg/L	2.4 µg/L	0.8 µg/L	77 µg/L	5.0 µg/L	7.9 µg/L
5/22/2007	<0.2 µg/L	1.7 µg/L	0.7 µg/L	77 µg/L	4.1 µg/L	7.0 µg/L
5/5/2008	<0.2 µg/L	0.9 µg/L	0.4 J µg/L	40 µg/L	1.9 µg/L	3.8 µg/L
5/1/2013	<1.0 µg/L (<1.0 µg/L)	<1.0 µg/L (<1.0 µg/L)	<1.0 µg/L (<1.0 µg/L)	92 µg/L (90 µg/L)	4.9 µg/L (5.0 µg/L)	12 µg/L (11 µg/L)

µg/L = micrograms per liter
J = estimated result
( ) = duplicate sample
< = not detected above the laboratory reporting limit

Well W105 was sampled in May 2006, May 2008, and May 2009 (AECOM, 2013; Table 5). Chlorinated ethenes (e.g., TCE, 11DCE, C12DCE, T12DCE, and VC) were detected in the samples collected from W105, with total chlorinated ethene concentrations ranging from 0.3 µg/L to 228.3 µg/L. Chlorinated ethene analytical results for W105 are summarized below.

W105 Chlorinated Ethene Results (AECOM, 2013; Table 5)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
5/1/2006	<0.2 µg/L	<0.1 µg/L	<0.2 µg/L	0.3 µg/L	<0.1 µg/L	<0.2 µg/L
5/5/2008	<0.2 µg/L	0.8 µg/L	0.3 J µg/L	35 µg/L	1.6 µg/L	6.6 µg/L
5/5/2009	<0.2 µg/L	0.3 µg/L	<0.2 µg/L	100 µg/L	36 µg/L	92 µg/L

µg/L = micrograms per liter
J = estimated result
< = not detected above the laboratory reporting limit

As noted in the above summary tables, chlorinated ethenes are present in the deeper regional municipal water supply aquifers underneath the Reilly Tar Superfund site, which is located approximately 1,500 feet west-northwest of 6714 Walker Street. The presence of these chlorinated VOCs in W23 and W105 cannot be attributed to the 6714 Walker Street site because the two wells are located hydraulically upgradient in different and deeper aquifers. The deep aquifers are hydraulically separated from the aquifer directly beneath the 6714 Walker Street site by two aquitards: the Glenwood Shale and the Pigs Eye (basal) member of the St. Peter Sandstone.

Also, the chlorinated VOC concentrations detected at the Reilly Tar Superfund site are likely affected by dilution due to the long open boreholes (> 100 feet) in these wells. The long open boreholes will dilute the VOC concentrations due to groundwater mixing within the long open borehole. At W23, the VOC concentrations are also affected by groundwater pumping thereby further reducing the measured VOC concentrations. The dilution factor of borehole mixing and groundwater pumping, although unknown, could be significant. The source of the chlorinated VOCs at W23 and W105 is unknown and has not been addressed, but most likely it is from locations at or near the former Reilly Tar site.

Any investigation into the SLP Solvent Plume that does not include consideration of the effects of the Reilly Tar Superfund site on the Plume is incomplete and invalid. In addition to correcting other significant analytical problems, the MPCA must withdraw the PA Report and add the Reilly Tar Superfund site as a potential VOC source that may be contributing to VOCs observed in municipal wells.

3.2.2 The PA Report Overstates and Misrepresents Alleged Contamination Contributions from 3356 Gorham Avenue (Former Super Radiator Coils Tube Fabrication Building)

The former Super Radiator Coils Tube Fabrication building is incorrectly identified as a potential source area by the MPCA in the PA Report. The basis for including 3356 Gorham Avenue as a source area is subjective and without merit based on the soil, groundwater and soil gas data collected on this property and presented in the PA Report. Section 3.1.1 (Soil Characterization and Sampling) of the PA Report does not identify any soil impacts at 3356 Gorham Avenue. In Section 3.1.2 (Groundwater Sampling) of the PA Report, only one exceedance of groundwater standards for VOCs is identified on the 3356 Gorham Avenue property (TCE at 9.4 µg/L). By comparison, the MPCA ignores or discounts other nearby sites with much higher concentrations of VOCs in groundwater as potential source areas, such as Pampered Pooch (7020 Walker Street), with a TCE concentration of 68 µg/L, and Family Digest (7008 Walker Street), with TCE, C12DCE, and T12DCE at concentrations of 100 µg/L, 76 µg/L, and 200 µg/L, respectively (see PA Report; Section 3.1.2, third and fourth bullets).

In Section 3.6 (Initial Soil Vapor Intrusion Assessment) of the PA Report, sub-soil vapor issues are referenced at 3356 Gorham Avenue (identified as Marathon), but the results do not correlate with the soil and groundwater results and could readily be attributed to soil vapor migration. Yet, the MPCA discounts other sites such as Pampered Pooch, which has both elevated soil gas results and groundwater results. The conclusion in the PA Report that the Former Super Radiator Coils Tube Fabrication building is a potential VOC source area lacks valid soil and groundwater data support, ignores the potential contributions of other nearby sources, and suggests the MPCA arbitrarily included 3356 Gorham Avenue as a potential source area simply on the basis that it was formerly owned by Super Radiator Coils.

3.2.3 The PA Report's Summary of 6714 Walker Street Data is Outdated

The PA Report is out of date with respect to studies completed in the 6714 Walker Street area. Beginning in January 2016, MPCA-approved studies were conducted at 6714 Walker Street that identified a PCE source, which was present in shallow soil and groundwater in a former degreaser/above ground storage tank (AST) area (GHD, 2016). However, it appears that this source is predominantly PCE and limited to shallow soils and groundwater. This location does not have a signature of TCE or VC, and no evidence of 1,4 dioxane which are found at the SLP municipal wells (Minnesota Department of Health (MDH), 2016). Additional studies are planned for the 6714 Walker Street site which will further clarify the nature and extent of contamination at 6714 Walker Street.

3.3 The PA Report Fails to Acknowledge That Other Chlorinated Ethene Sources Exist in the Lower Drift Aquifer and Platteville Aquifers That Could Not Have Originated From the 6714 Walker Street Site

GHD reviewed the groundwater data provided by the MPCA, which includes analytical results from groundwater samples collected between 2004 and 2015 from monitoring wells that were installed primarily for the Reilly Tar Superfund site. GHD's data review focused on monitoring wells that are screened in the same aquifers that are immediately beneath the 6714 Walker Street site, which are the Drift and the underlying Platteville Limestone aquifers. Previous studies have shown that groundwater flows in an easterly direction for both the Drift and Platteville Aquifers (Lindgren, 1995).

From the data review, GHD identified several monitoring wells with detections of chlorinated ethenes that are geographically located in areas that are not hydraulically downgradient of the 6714 Walker Street site. These monitoring wells are discussed below.

3.3.1 Drift Aquifer

Well P307 is located 250 feet to the southwest of 6714 Walker Street and is not downgradient of the 6714 Walker Street site (see Figure 3 of this report). P307 has been sampled at least eight times since April 2005 and total chlorinated ethane concentrations have ranged from 0.3 µg/L to 5,262 µg/L (AECOM, 2013; Table 1) (GHD, 2016; Table 6). The most recent (March 2016) chlorinated ethene analytical results for P307 are presented below. The most predominant VOC detected at P307 is C12DCE.

P307 Chlorinated Ethene Results – March 2016 (GHD, 2016; Table 6)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
3/24/2016	ND	ND	ND	4,800 µg/L	92 J µg/L	370 µg/L
µg/L = micrograms per liter J = estimated result ND = not detected above the laboratory reporting limit						

Well W420 is a pumping well used for gradient control in the drift aquifer for the Reilly Tar Superfund site. W420 is located 1,100 feet to the southwest of 6714 Walker Street and is upgradient of the 6714 Walker Street site (see Figure 3 of this report). W420 has been sampled at least seven times since December 2004 and total chlorinated ethene concentrations have ranged from 27.4 µg/L to 240.6 µg/L (AECOM, 2013; Table 1). The most recent (May 2013) chlorinated ethene analytical results for W420 are presented below. W420 pumps at approximately 40 gpm (USEPA, 2016). At that pumping rate, distance, and geographic location, it is highly unlikely that groundwater from underneath 6714 Walker Street is being captured and pulled upgradient by W420. Further, it is likely that groundwater pumping by W420 tends to reduce the VOC concentrations measured at this well because it captures groundwater over a large area, including non-impacted groundwater.

W420 Chlorinated Ethene Results – May 2013 (AECOM, 2013; Table 1)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
5/2/2013	< 1.0 µg/L (<1.0 µg/L)	<1.0 µg/L (<1.0 µg/L)	<1.0 µg/L (<1.0 µg/L)	9.4 µg/L (9.5µg/L)	<1.0 µg/L (<1.0 µg/L)	18 µg/L (19 µg/L)
µg/L = micrograms per liter ( ) = duplicate sample < = not detected above the laboratory reporting limit						

3.3.2 Platteville Aquifer

Well W437 is located 250 feet to the southwest of 6714 Walker Street and is not downgradient of the 6714 Walker Street site (see Figure 4 of this report). W437 has been sampled at least eight times since May 2005 and total chlorinated ethene concentrations have ranged from 1,022 µg/L to 15,967 µg/L (AECOM, 2013; Table 2) (GHD, 2016; Table 6). The most recent (March 2016) chlorinated ethene analytical results for W437 are presented below.

W437 Chlorinated Ethene Results – March 2016 (GHD, 2016; Table 6)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
3/24/2016	36 J µg/L	ND	ND	1,300 µg/L	ND	110 µg/L
µg/L = micrograms per liter J = estimated result ND = not detected above the laboratory reporting limit						

Well W421 is a pumping well used for gradient control for the Reilly Tar Superfund site. W421 is located 900 feet to the southwest of 6714 Walker Street and is upgradient of the 6714 Walker Street site (see Figure 2.4 of this report). W421 has been sampled at least seven times since December 2004 and total chlorinated ethene concentrations have ranged from 649.1 µg/L to 3,061.3 µg/L (AECOM, 2013; Table 2). The most recent (June 2013) chlorinated ethene analytical results for W421 are presented below. W421 pumps approximately 21 gpm (USEPA, 2016). At that pumping rate, distance and geographic location, it is highly unlikely that groundwater from underneath 6714 Walker Street is being captured and pulled upgradient by W421. It is also likely that groundwater pumping by W421 tends to reduce the VOC concentrations measured at this well because it captures groundwater over a large area, including non-impacted groundwater.

W421 Chlorinated Ethene Results – June 2013 (AECOM, 2013; Table 2)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
6/3/2013	< 1.0 µg/L (<1.0 µg/L)	<1.0 µg/L (<1.0 µg/L)	1.1 µg/L (1.1 µg/L)	310 µg/L (330 µg/L)	58 µg/L (60 µg/L)	280 µg/L (310 µg/L)
µg/L = micrograms per liter ( ) = duplicate sample < = not detected above the laboratory reporting limit						

Well W18 is located 900 feet southwest of 6714 Walker Street (south of gradient control well W421) and is upgradient from the 6714 Walker Street site (see Figure 4 of this report). W18 has been sampled at least twice since June 2005 and total chlorinated ethene concentrations have ranged from 22.6 µg/L to 2,172.7 µg/L (AECOM, 2013; Table 2). The most recent (May 2013) chlorinated ethene analytical results for W18 are presented below. The May 2013 VOC concentrations at W18 are approximately three times higher than the June 2013 concentrations at nearby pumping well W421. The difference in VOC concentrations between W18 and W421 are attributed to groundwater pumping effects at W421. As noted above, groundwater pumping by W421 tends to reduce the VOC concentrations measured at W421 because it captures groundwater over a large area, including non-impacted groundwater.

W18 Chlorinated Ethene Results – May 2013 (AECOM, 2013; Table 2)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
5/1/2013	< 1.0 µg/L	<1.0 µg/L	2.7 µg/L	950 µg/L	120 µg/L	1,100 µg/L
µg/L = micrograms per liter < = not detected above the laboratory reporting limit						

Well W143 is located approximately 1,600 feet south-southeast of 6714 Walker and doesn't appear to be downgradient of the 6714 Walker Street site (see Figure 4 of this report). W143 has been sampled at least six times since May 2005 and total chlorinated ethene concentrations have ranged from 135.7 µg/L to 8,801 µg/L (AECOM, 2013; Table 2). The most recent (April 2013) chlorinated ethene analytical results are presented below.

W143 Chlorinated Ethene Results – April 2013 (AECOM, 2013; Table 2)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
4/29/2013	<0.2 µg/L (<0.2 µg/L)	320 µg/L (310 µg/L)	21 µg/L (20 µg/L)	7,600 µg/L (7,600 µg/L)	580 µg/L (560 µg/L)	280 µg/L (270 µg/L)
µg/L = micrograms per liter ( ) = duplicate sample < = not detected above the laboratory reporting limit						

Well W20 is located approximately 1,700 feet south of 6714 Walker Street and is not downgradient of the 6714 Walker Street site (see Figure 4 of this report). W20 has been sampled at least six times since May 2005 and total chlorinated ethene concentrations have ranged from 0.9 µg/L to 113.2 µg/L (AECOM, 2013; Table 2). The most recent (May 2013) chlorinated ethene analytical results are presented below.

W20 Chlorinated Ethene Results – May 2013 (AECOM, 2013; Table 2)

Date	PCE	TCE	11DCE	C12DCE	T12DCE	VC
5/1/2013	<1.0 µg/L	<1.0 µg/L	<1.0 µg/L	16 µg/L	1.2 µg/L	96 µg/L
µg/L = micrograms per liter < = not detected above the laboratory reporting limit						

To summarize, these Drift and Platteville well locations have documented elevated concentrations of chlorinated ethenes. The two Reilly Tar Superfund site gradient control pumping wells (W420 and W421) by design capture water over a wide area and therefore their analytical results are likely reduced by mixing with non-impacted groundwater. This opinion is supported by the data from W18, which is located near the gradient control pumping well W421. As noted above, W18 recently showed high VOC concentrations, particularly for C12DCE and VC.

3.4 The PA Report Lacks a Conceptual Site Model

EPA guidance requires, as part of the data quality objective process, that an environmental investigation include a conceptual site model (CSM) that identifies how the sources of contamination are connected to the receptors (USEPA, 1998) (USEPA, 2000) (USEPA, 2006a). The absence of a CSM in the PA Report results in critical discrepancies that invalidate significant conclusions in the PA Report. For instance, the PA Report fails to connect how shallow VOC contamination in the alleged "main source area" bypasses two aquitards (Glenwood Shale and the basal St. Peter Sandstone) to reach the deeper OPCJ aquifer and the municipal wells. Because of the lack of this critical analytical component in the PA Report, the conclusion that the alleged "main source area" is the cause for contamination at the SLP and Edina municipal wells is technically deficient.

None of the studies cited in the PA Report—nor any others, to date--have verified a connection between the Drift/Platteville aquifers and the deeper OPCJ aquifer, with the exception of the vertical conduit created by Reilly Tar well W23 (AECOM, 2008). The cited studies have inferred that groundwater from the Drift/Platteville aquifer migrated and entered a bedrock valley located to the southeast of the alleged "main source area". The MPCA alleges that once the groundwater entered this bedrock valley, it somehow bypassed the Platteville Limestone, Glenwood Shale, *and* St. Peter Sandstone to reach the OPCJ aquifer. However, the bedrock valley only extends into the St. Peter Sandstone and not down into the OPCJ aquifer (Mossler and Tipping, 2000). The lower portion of the St. Peter Sandstone is recognized as a low permeable formation and has been classified as an aquitard (Mossler, 2015). If the Drift groundwater plume does migrate into the OPCJ aquifer, then it must migrate past SLP municipal wells SLP4 and SLP6 before it can reach the seasonal-operating Edina municipal well E7. This groundwater migration pathway would be complex and contrary to the southeasterly regional OPCJ groundwater flow direction (Balaban, 1989). Therefore, this connection between the 6714 Walker Street area and Edina municipal well E7 is subjective without supporting technical data. The PA Report does not include or reference any hydraulic (i.e., groundwater contours) or chemical data that directly connects the 6714 Walker Street site to the bedrock valley. There is also no supporting technical data to demonstrate that groundwater from the alleged "main source area" is entering the bedrock valley location and is hydraulically connected to Edina municipal well E7.

In order to support such an assertion, a CSM must be prepared to provide a written or illustrative representation that identifies the potential sources and describes how the various processes (e.g., physical and chemical) control the transport and migration of contaminants and the potential impacts to the municipal wells that supports the MPCA's assertions. The level of detail for the CSM should match the complexity of the site and the available data (ASTM, 2008).

3.5 The PA Report Fails to Connect Municipal Well Contamination to the MPCA-Identified "Main Source Area"

Because the PA Report does not provide a CSM, it fails to connect the municipal well contamination at SLP and Edina to the "main source area". As part of a CSM, the PA Report should have cited recent WHPA documents that have been prepared for both the SLP (Sourcewater, 2015) and Edina (Sourcewater, 2013) municipal wells fields. These WHPA reports use groundwater flow modeling to show groundwater flow patterns, groundwater capture areas, and particle flow paths for individual municipal wells. These WHPA documents show the hydraulic extent and influence of each municipal well.

Edina municipal well E7 is a seasonal (summer only) municipal well and pumps intermittently (Sourcewater, 2013). The WHPA groundwater modeling shows that the Edina municipal well E7 captures groundwater from the northwest, which is the upgradient regional groundwater flow direction for the OPCJ aquifer, and not from the north or northeast (Sourcewater, 2013). Therefore, the WHPA modeling does not support a connection between the alleged "main source area" and Edina municipal well E7.

The Edina WHPA Report also shows potential groundwater contaminant sources near individual municipal wells, including numerous potential contaminant locations near Edina municipal well E7 (Sourcewater, 2013; Figure 12-4). A copy of this figure is presented in Appendix B of this report. These potential sources could be sources of contamination at Edina municipal well E7, yet the PA Report ignores these sources. The Edina WHPA Report shows approximately one dozen potential contaminant sources within a half mile of Edina municipal well E7. The PA Report has not acknowledged nor given these sites any serious consideration to investigate them in any detail.

3.6 The PA Report Fails to Recognize the Presence of Other Compounds of Concern (TCE and 1,4-Dioxane)

The MPCA ignores evidence of other compounds of concern that do not fit within the "main source area" narrative it attempts to construct in the PA Report. For instance, TCE has been detected in SLP municipal wells SLP4 and SLP6 starting in 2006 and 2004, respectively (AECOM, 2013; Table 4). In June 2015, 1,4-dioxane was detected at the water treatment plant (WTP) associated with SLP4 (MDH, 2016), prior to the submission of the PA Report. The presence of these compounds indicates there are other sources that are not connected to the alleged "main source area". In 2015, prior to the PA Report submittal, the MPCA conducted a groundwater study in the suspected "main source area" (AECOM, 2015). TCE was detected in approximately half of the groundwater samples but approximately 50% of the detections were less than 10 µg/L. When considering travel distances, dispersion, and diffusion processes, and groundwater mixing due to high volume municipal well pumping, these low TCE concentrations do not correlate to the TCE detections reported at SLP4 and SLP6, which have ranged from 1.4 µg/L to 9.5 µg/L (AECOM, 2013; Table 4). Typically, a much higher "source" TCE concentration would be needed to result in the concentration levels detected at SLP4 and SLP6. The alleged "main source area" therefore cannot be the cause of the observed TCE concentrations at the SLP municipal wells.

The compound 1,4-dioxane is a chemical stabilizer that is most commonly associated with 111TCA (EPA, 2006b). 111TCA and 1,4 dioxane have not been identified in the alleged "main source area" and specifically not at the 6714 Walker Street site.

The PA Report does not discuss or explain how TCE and 1,4-dioxane migrated to the municipal wells. Additional study is required to evaluate where these compounds originated and whether the source(s) of these compounds may also be source(s) of the VC affecting the municipal wells.

3.7 The PA Report Incorrectly Characterizes Potential Potable Well Receptors

The PA Report identifies hundreds of potential receptors via private and commercial wells (see PA Report; Figure 8). However, the number of wells is based on a radial distance and ignores the groundwater flow direction and drinking water aquifer used by these wells. The PA Report also fails to inventory whether the industrial wells are still in service or whether these wells are used for human consumption. Essentially, the entire study area is served by municipal water and the potential for exposure via well water is very likely much less than characterized in the PA Report. It is possible that there may be some residential locations where private wells exist. However, these private wells are typically installed into the shallower Drift, Platteville, or St Peter aquifers and would not draw water from the OPCJ. SLP has a city code that prohibits the connection of private wells at locations that are connected to city water (City Code 1976, § 9-137). Also, according to the MDH, there are likely only a handful of private wells in operation in the SLP area (MDH, 2017). The number of private wells listed in the PA Report is overstated and the private wells remaining are likely shallow private wells and would not have the same exposure to groundwater impacts seen at OPCJ municipal wells. As such, it is inappropriate for the MPCA to assert that hundreds of receptors exist as a result of proximity to private or commercial wells.

4. Conclusions

The PA Report fails to provide necessary technical and scientific bases to support the MPCA's assertion that the intersection of Highway 7 and Louisiana Avenue represents the "main source" of VOC contamination and is responsible for the contamination found at Edina municipal well E7. Specifically, the PA Report:

- Lacks a fundamental demonstration that the SLP Solvent Plume data exists on account of emanation of specific contaminants from a specific source or source area so as to constitute a groundwater plume.
- Ignores potential contributions from other locations with higher contaminant levels, most notably the Reilly Tar Superfund site and misrepresents other locations (e.g., 3356 Gorham Avenue) as potential VOC sources.
- Fails to investigate other identified sources with contamination and lacks evidence to support the 6714 Walker Street site as a source of VOC contamination beyond the immediate area of 6714 Walker Street
- Lacks a CSM

- Fails to incorporate critical information from other regional groundwater studies, such as the WHPA modeling and to provide a plausible explanation (i.e., a CSM) on how the groundwater from the alleged source area migrated and impacted the municipal wells in SLP and Edina
- Fails to recognize the presence of other compounds as contaminants of concern
- Overstates the potential impact to private and commercial wells without regard to the geographic locations and the aquifers utilized by those wells

Based on these discrepancies, the PA Report should be withdrawn. Any investigation into the SLP Solvent Plume that does not include consideration of the effects of the Reilly Tar Superfund site on the Plume is incomplete and invalid. In addition to correcting other significant analytical problems, any future PA Report must add the Reilly Tar Superfund site as a potential VOC source that may be contributing to VOCs observed in municipal wells. It must also consider and provide actual data that points to and justifies any assertion that any main source area exists.

5. References

AECOM, 2008. St. Louis Park/Edina Groundwater VOC Contamination Study – Phase IV. Task 1002: St. Louis Park/Edina/Hopkins Groundwater VOC Data Review. December 31, 2008. 238 p.

AECOM, 2009. Investigation of the Potential Sources of Chlorinated VOCs, St. Louis Park, Minnesota. June 30, 2009. 1068 p.

AECOM, 2010. VOC Sampling of the Edina and St. Louis Park Wells in 2010. June 30, 2010. 18p.

AECOM, 2013. VOC Sampling of the Edina and St. Louis Park Wells in FY 2013. June 30, 2013. 380 p.

AECOM, 2015. St Louis Park Investigation. April 1, 2015. 1577 p.

ASTM, 2008. Standard Guide for Developing Conceptual Site Models for Contaminated Sites, Method E 1689-95.

Balaban, N. H., 1989. Geologic Atlas of Hennepin County, Minnesota. Minnesota Geological Survey, County Atlas Series C-04.

GHD Services, Inc., 2016. Site Investigation Results - 6714 Walker Street Site. June 9, 2016. 782 p.

Lindgren, R.J., 1995. Hydrogeology and Ground-Water Flow of the Drift and Platteville Aquifer System, St. Louis Park, Minnesota. U.S. Geological Survey Water-Resources Investigations Report 94-4204.

Minnesota Department of Health, 2016. St. Louis Park Drinking Water. October 12, 2016. 16 p.

Minnesota Department of Health, 2017. Personal communication with Hinshaw and Culbertson LLP. January 13, 2017.

Mossler, J. H. and R. G. Tipping, 2000. Bedrock Geology and Structure of the Seven-County Twin Cities Metropolitan Area, Minnesota. Minnesota Geological Survey, Misc. Map Series M-104.

Mossler, J.H., 2015. Paleozoic Stratigraphic Nomenclature for Minnesota: Minnesota Geological Survey Report of Investigations 65, 76 p.

STS/AECOM, 2007. St. Louis Park Schools Soil Vapor Investigation. December 18, 2007. 154 p.

STS Consultants, 2004. City of Edina Municipal Well 7 Packer Sampling Scope of Work, Methods, and Procedures. August 23, 2004. 15 p.

STS Consultants, 2005. City of Edina Well No. 7 Study – Phase II Report, March 2005 to June 2005. June 30, 2005. 230 p.

STS Consultants, 2006. St. Louis Park W437 Chlorinated Solvent Source Investigation. March 13, 2006. 54 p.

STS Consultants, 2007. St. Louis Park/Edina/Hopkins Groundwater Volatile Organic Compounds Contamination Study - 2007. June 30, 2007. 405 p.

Sourcewater Solutions, 2013. Final Wellhead Protection Plan Part II, City of Edina, Minnesota. April 8, 2013. 83 p.

Sourcewater Solutions, 2015. Part I Wellhead Protection Plan Amendment, St. Louis Park, Minnesota. May 19, 2015. 146 p.

USEPA. 1998. Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA; EPA/540/G-89/004.

USEPA, 2000. Data Quality Objectives Process for Hazardous Waste Site Investigations: Final Guidance. EPA/600/R-00/007.

USEPA, 2006a. Guidance on Systematic Planning Using the Data Quality Objective Process. EPA/240/B-06/001.

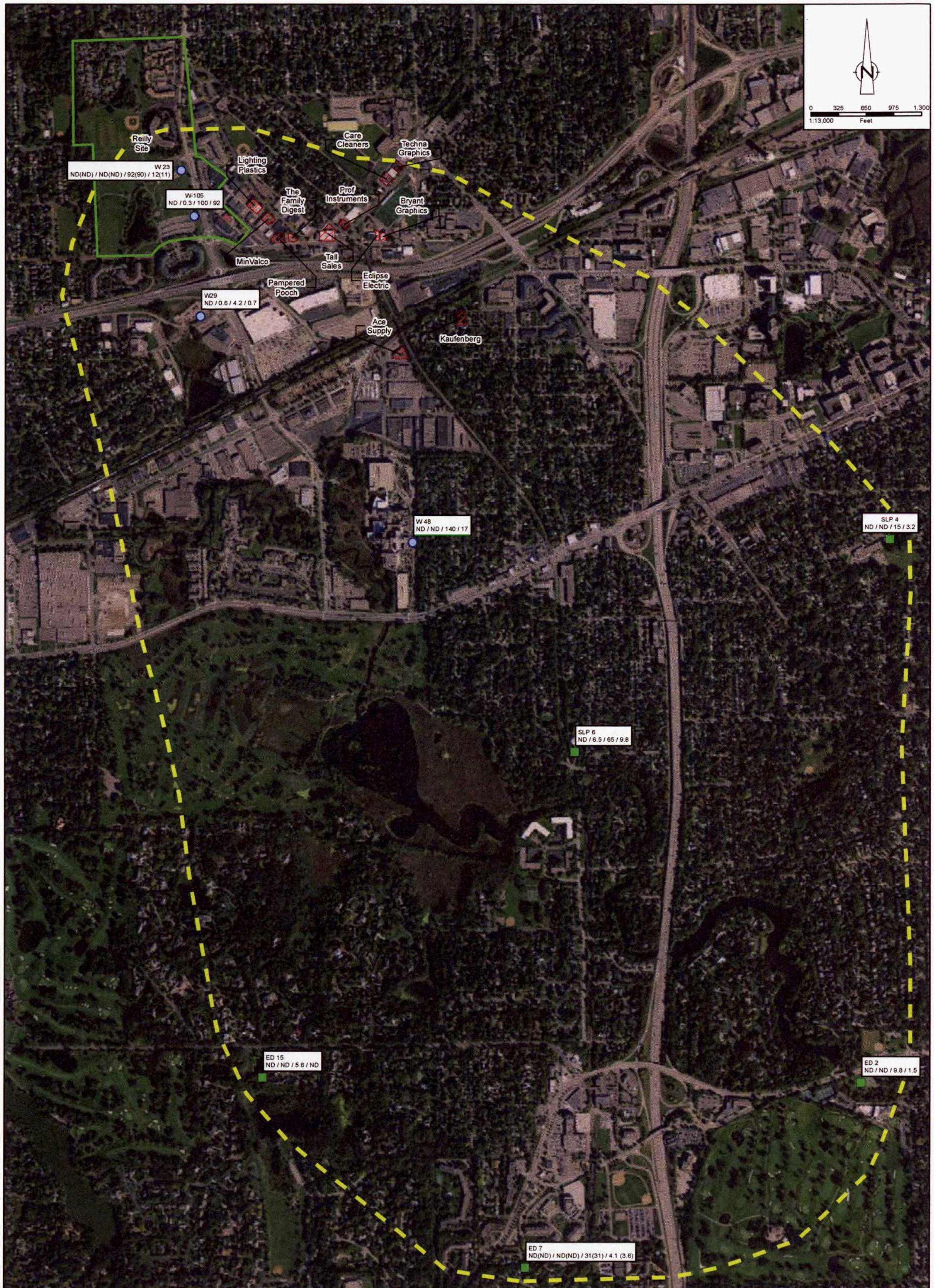
USEPA, 2006b. Treatment Technologies for 1,4-dioxane: Fundamentals and Field Applications. EPA-542-R-06-009.

USEPA, 2011a. An Approach to Evaluate the Progress of Natural Attenuation in Groundwater. EPA600/R-11.

USEPA, 2011b. Five-Year Review Report. Fourth Five-Year Review Report for Reilly Tar and Chemical Corporation, St. Louis Park, Hennepin County, Minnesota. June 2011. 110 p.

USEPA, 2016. Five-Year Review Report. Fifth Five-Year Review Report for Reilly Tar and Chemical Corporation, St. Louis Park, Hennepin County, Minnesota. June 2016. 75 p.

Figures



Source: ESRI Topographic Map 2012; Coordinate System: NAD 1983 Contiguous USA Albers

LEGEND

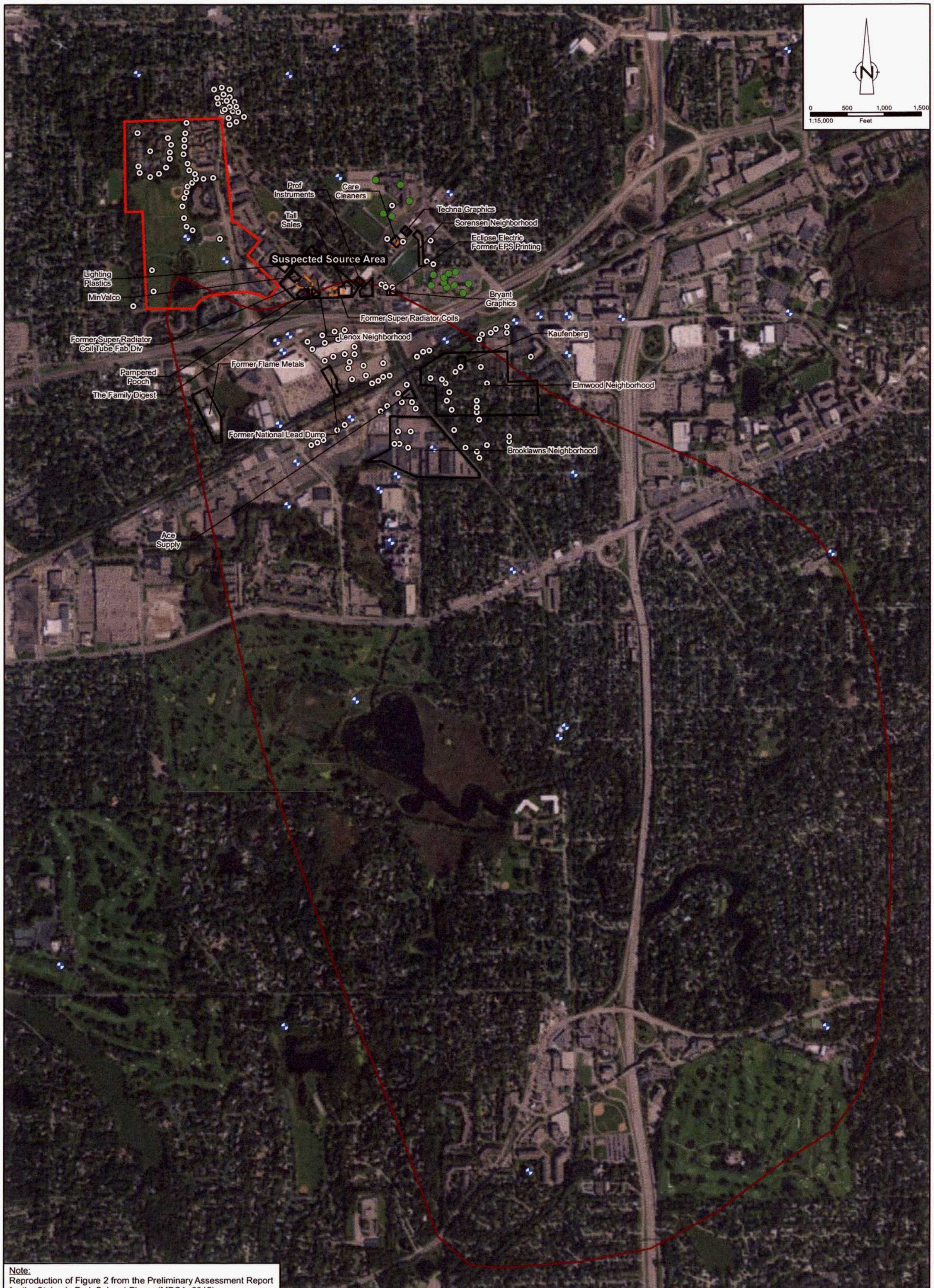
- Water Supply Wells
- Municipal Wells
- Chlorinated VOC Groundwater Area
- Buildings
- Reilly Site

Notes:
PCE/TCE/CDCE/VC
All concentrations in ug/L

figure 1

CHLORINATED ETHENES
PRAIRIE DU CHIEN AQUIFER
Hennepin County, Minnesota

088751-10(006)GIS-WA001 January 26, 2017



Note:
Reproduction of Figure 2 from the Preliminary Assessment Report for the St. Louis Park Solvent Plume (MPCA, 2015)

Source: ESRI Topographic Map 2012; Coordinate System: NAD 1983 Contiguous USA Albers

LEGEND

- Investigated Areas
- Reilly Tar and Chemical
- SuspectedSourceArea
- Approx GW Contamination

Type of Sampling Location

- Gas Monitoring Probe (329)
- Gas Subslab (15)
- Well (121)

GHD

figure 2

MPCA INVESTIGATION OVERVIEW
WEST METRO SOLVENT PLUME
Hennepin County, Minnesota

088751-10(006)GIS-WA004 January 27, 2017

Source: ESRI Topographic Map 2012; Coordinate System: NAD 1983 Contiguous USA Albers

LEGEND

Units - ug/L

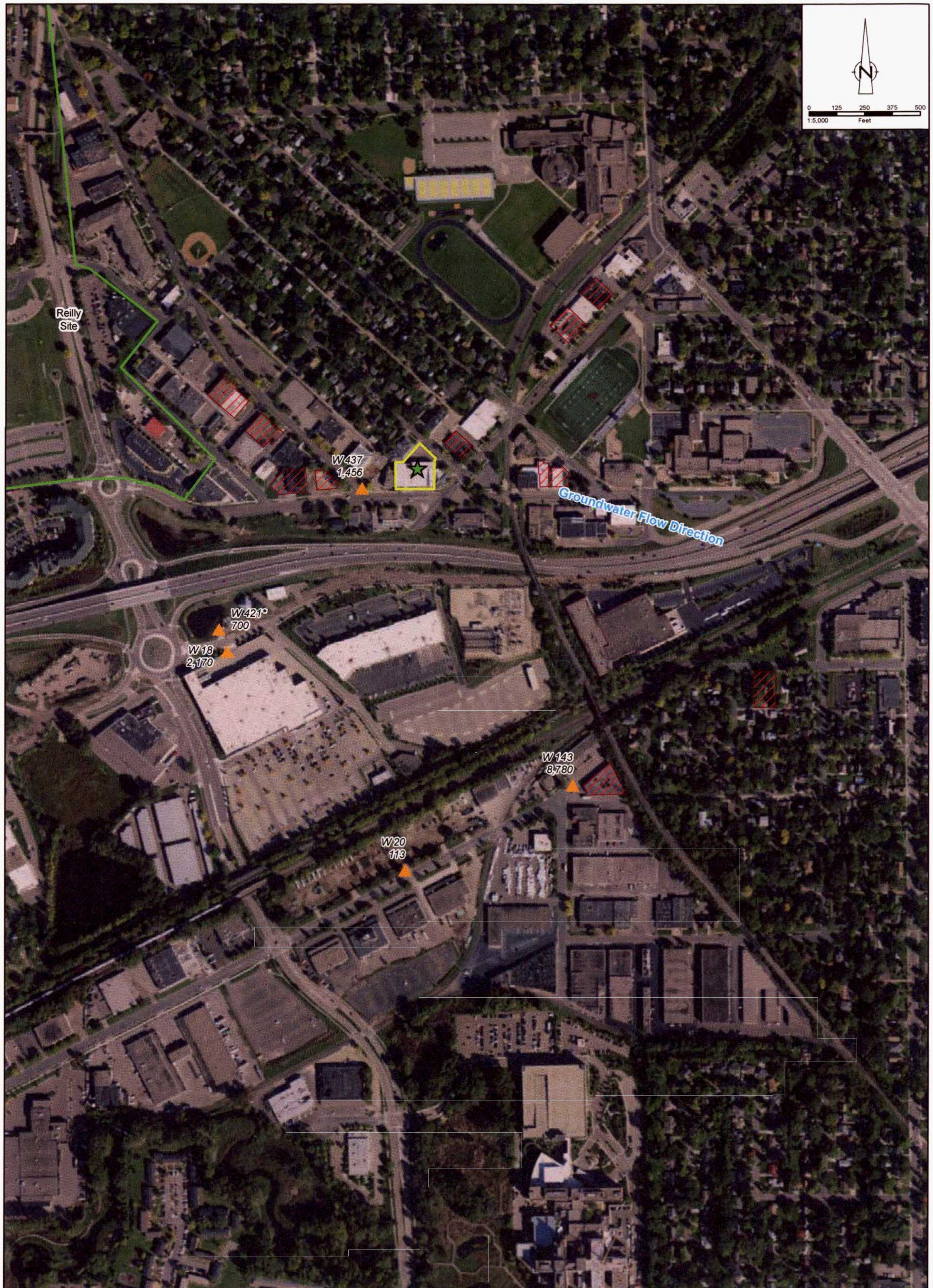
- Drift Wells
- Buildings
- Reilly Site
- Tall Sales

Notes:
* = Pumping Wells
ND = Not Detected
(cDCE, PCE, TCE, and Vinyl Chloride)

figure 3

DRIFT AQUIFER
TOTAL CHLORINATED ETHENES
ST. LOUIS PARK PLUME
Hennepin County, Minnesota

088751-10(006)GIS-WA002 January 26, 2017



LEGEND

Units - ug/L

- Platteville Wells
- Buildings
- Reilly Site
- Tall Sales

Notes:
* = Pumping Wells
(PCE, TCE, C12DCE, T12DCE, and Vinyl Chloride)

figure 4

PLATTEVILLE AQUIFER
TOTAL CHLORINATED ETHENES
ST. LOUIS PARK PLUME
Hennepin County, Minnesota

088751-10(006)GIS-WA003 January 26, 2017

Appendices

Appendix A
Preliminary Assessment Report
St. Louis Park Solvent Plume

PRELIMINARY ASSESSMENT REPORT
for
ST. LOUIS PARK SOLVENT PLUME
ST. LOUIS PARK, HENNEPIN COUNTY, MINNESOTA

MPCA Site Assessment Site: SA4543
MPCA Superfund Site ID: SR377, SR358
EPA ID: MNN000510267

Prepared by:

Minnesota Pollution Control Agency
Remediation Division
Site Remediation and Redevelopment Section
Site Assessment Program
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

December 17, 2015

Minnesota Pollution Control Agency

Signature Page
For

Preliminary Assessment
St. Louis Park Solvent Plume
(a.k.a., Highway 7 and Wooddale Avenue Vapor Intrusion)

St. Louis Park, Hennepin County, Minnesota
MPCA Site Assessment Site: SA4590
MPCA Superfund Site ID: SR249
EPA Site ID: MNN000510267

Prepared by: ____________________ **Date:** 1/13/16
Jen Jevnisek
Technical Analyst
Minnesota Pollution Control Agency

Approved by: ____________________ **Date:** 1/13/16
Gregory L. Small, P.G.
Site Assessment Program Coordinator
Minnesota Pollution Control Agency

Approved by: David M. Brauner **Date:** 1/13/16
David Brauner
Site Assessment Manager
U.S. EPA Region V

TABLE OF CONTENTS

TABLE OF CONTENTS

Figures

Tables

Appendices

PRELIMINARY ASSESSMENT REPORT
St. Louis Park Solvent Plume
MPCA Site Assessment Site SA4542/Superfund Sites SR377, SR358
EPA SEMS ID MNN000510267

1.0 INTRODUCTION

The Site Assessment Program of the Minnesota Pollution Control Agency (MPCA), under a Cooperative Agreement with the United States Environmental Protection Agency (EPA), has prepared this Preliminary Assessment Report (PA) under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 40 CFR, Part 300) for the St. Louis Park Solvent Plume in St. Louis Park and Edina, Minnesota (the Site). The purpose of the PA is to distinguish between sites that pose little or no risk to human health and the environment and sites that require further investigation. If, over the course of the investigation, there is sufficient information to suggest the site is impacting human health or the environment, the site can be placed in the SEMS database and will progress through the Superfund investigative process.

The MPCA was given approval by the EPA to conduct a PA at the St. Louis Park Solvent Plume (originating near Highway 7 and Wooddale Avenue in St. Louis Park, Hennepin, Minnesota, Figure 1) based on the results of a Pre-CERCLIS Screening worksheet (PCS) that was prepared for this site (MPCA, 2014). The PCS identified tetrachloroethene (PCE), trichloroethene (TCE), *cis*-1,2-dichloroethene (cis-DCE), and vinyl chloride (VC) as possible contaminants of concern. Potential sources of chlorinated solvent contamination include metal cleaning, degreasing operations, mechanical maintenance, dry cleaning and others. Information contained in this report will be used to evaluate this site to support a site decision regarding the need for further Superfund action, including the possibility for the St. Louis Park Solvent Plume site to be considered for inclusion on the National Priorities List (NPL) of hazardous waste sites.

This report contains the text, figures and data tables discussed. The appendix references throughout the text refer the reader to a particular appendix within a specific report that contains the referred information. Previous report documents referred to in this report will be submitted as references to this Preliminary Assessment Report.

2.0 SITE BACKGROUND

2.1 Site Location

The St. Louis Park Solvent Plume (Site) is located in the cities of St. Louis Park and Edina, Hennepin County, Minnesota (Figure 1). The Site comprises approximately 3.16 square miles, and is located within an area generally bounded by W 33rd Street to the north, S France Avenue to the east, W 58th Street to the south, and Blake Road to the west and includes the St. Louis Park municipal wells SLP4 and SLP6 and Edina municipal wells E2, E7 and E15. The Site is located in multiple sections of Township 117 North, Range 21 West and Township 28 North, Range 24 West of the Minneapolis South, Minnesota 7.5-Minute Quadrangle.

The Site is generally flat lying and sits at a surface elevation ranging from approximately 885 to 990 feet above sea level. Meadowbrook Lake is present in the western portion of the Site, and Minnehaha Creek is present in the west and southern portions of the Site (Figure 1).

2.2 Area Geology and Hydrogeology

The Site is located approximately 7.8 miles northwest of the confluence of the Minnesota and Mississippi Rivers, in the vicinity of a buried bedrock valley that formerly contained the Glacial River Warren. The upper-most bedrock in the area of the site is typically the Platteville formation, at depths of 90 to 150 feet below grade. However, the surficial soils were developed from Des Moines Lobe glacial outwash deposits consisting of sand, loamy sand and gravel; overlain by loess deposits less than four feet thick that fill the bedrock valley and underlie the entire area (Balaban, 1989).

Groundwater flow in the unconsolidated glacial deposits is generally presumed to be southeast toward the Minnesota River, approximately 7.5 miles from the site. However, in the area of the Site, local shallow groundwater flow may be influenced by Minnehaha Creek and Meadowbrook Lake (present in the western and southern portions of the Site). Groundwater flow in the Prairie du Chien bedrock aquifer in this area is also presumed to flow toward the Mississippi River, approximately 7.2 miles east of the site. However pumping stresses from municipal and commercial activities significantly alters groundwater flow throughout the area (MGWA Newsletter June 2009).

According to the Minnesota Geological Survey, the water table system in the area of the site is high to very highly susceptible to pollution (Balaban, 1989) and the Prairie du chien-Jordan aquifer is moderately susceptible to pollution in the area of the bedrock valley (Piegat 1989).

2.3 Site Description and History

Portions of the Site have been in residential, commercial, and industrial use for nearly a century. Commercial businesses included many machine shop operations (including tool and die manufactures, engine rebuilders, and metal fabricators) throughout the area. Industrial uses included a secondary lead smelter (previously occupied by a farm implement manufacturer) and manufacturing facilities. The Reilly Tar and Chemical wood treating facility (MPCA ID SR60, EPA ID MND980609804) operated near the northwest portion of the Site from 1917 to 1972 (STS, 2005a).

2.4 Previous Environmental Investigations

Environmental investigation work was initiated in 2004, when vinyl chloride was detected in the city of Edina municipal well number 7 (E7) at a concentration exceeding the federal maximum contaminant level (MCL). The detection triggered a multi-phase investigation to identify the source of groundwater contamination, as well as identify contaminant fate and transport mechanisms. The Edina municipal wells were listed on the state Permanent List of Priorities (PLP) in July 2006 as site ID SR358.

Investigations conducted between 2004 and 2013 (STS, 2004; STS, 2005b; STS, 2006; STS/AECM, 2007; AECOM, 2008; AECOM, 2009; AECOM, 2010; AECOM, 2013) documented the presence of a large chlorinated volatile organic compound (VOC) plume spreading from the drift aquifer through the Platteville (OPVL) and St. Peter (OSTP) aquifers down to the Prairie du Chien-Jordan (OPCJ) aquifer. The main source for the chlorinated VOCs was centered on an area within the city of St. Louis Park, most notably in an area near the intersection of Highway 7 and Louisiana Avenue. This conclusion was supported by water data indicating that during the spring, summer, and fall months, heavy pumping from the Edina municipal wells creates a hydraulic gradient causing contaminated groundwater in the OPCJ aquifer to migrate from St. Louis Park toward the Edina wells. The OPCJ aquifer serves as the principal water supply aquifer in the area.

Multiple supply wells were identified with historic chlorinated VOC concentrations exceeding regulatory criteria (Minnesota health risk limits/health based values [HRLs/HBVs] and/or federal maximum contaminant levels [MCLs]) during this timeframe. These included: St. Louis Park municipal wells (SLP4, and SLP6), Edina municipal wells (E2, E7, E13, and E15), and non-municipal water supply wells (W23-Reilly pump out well, W29-industrial well, W48-abandoned, W105-Reilly pump out well, and W119-irrigation well). It should be noted that St. Louis Park well SLP6 is currently not used as a principal municipal supply well; however, it is connected as a backup supply well for times of emergency use. Other wells that have had chlorinated solvent detections below the MCLs or HRLs include Edina municipal well E13 and Hopkins municipal well H6.

Until late 2006, environmental sampling efforts focused exclusively on testing groundwater. However, the presence of a high concentration VOC plume in the drift aquifer, extending through the St. Louis Park residential areas, raised a concern of exposure to VOCs through the vapor intrusion pathway (STS, 2007A). A soil vapor survey was completed in 2007 to collect soil vapor data (STS, 2007B). Results of the survey identified soil vapor contamination within the area, with the highest shallow vapor concentrations noted in a residential area near Colorado Avenue South and Oxford Street. MPCA staff determined additional testing was warranted, and St. Louis Park city staff was notified.

The MPCA requested assistance from the U.S. Environmental Protection Agency (EPA) Emergency Response Program due to the size, complexity, and expense of the additional study needed to evaluate soil vapor intrusion. A plan was developed by both agencies, and testing began in early 2008. EPA took steps necessary to protect the health and safety of residences who had given access, including the installation of sub-slab depressurization systems in about 40 homes. EPA involvement concluded in June 2008.

Additional source area characterization (including the collection of soil and groundwater samples, and conducting passive soil vapor surveys) was completed between 2009 and 2013 to further characterize the area noted in 2007 (the suspected source area). These investigations (AECOM, 2009; AECOM, 2012; AECOM, 2013B) identified five potential sources of VOC contamination that the MPCA has identified as the suspected sources. These include: former Super Radiator Coils/current Tall Sales (6714 Walker Street), Super Radiator Coil Tube Fab Division (3356 Gorham Avenue), Eclipse Electric (6512 Walker Street), Former EPS Printing (6518 Walker Street) and Care Cleaners (6528 W Lake Street). The St. Louis Park solvent plume was added to the state PLP in April 2010 as site ID SR377.

The historic data demonstrates the presence of hazardous substances released to the environment. The MPCA is continuing to perform additional studies to further characterize the identified source areas, as well as identify the parties responsible for the releases.

3.0 SITE ASSESSMENT FIELD ACTIVITIES

The MPCA Site Assessment (SA) program evaluates sites to determine if there is contamination present that is regulated under the regulatory framework established in CERCLA (42 USC, ch. 103) and/or MERLA (MN Stats. Ch. 115B). In addition, if contamination is present, the SA program determines the extent and magnitude of contamination, identifies exposure pathways, and attempts to determine if a responsible party may exist. The SA program reviewed the data available, including reports previously prepared by others, and concluded that additional subsurface field investigation was warranted to ascertain the extent and magnitude of the contamination and determine the level of risk to human health and the environment. As indicated in Section 2.4, a number of investigations have been conducted at the Site since 2004. This section focuses on the most recent field investigations (STS, 2007A; AECOM, 2009; AECOM, 2013A; AECOM, 2014A/B/C; and AECOM, 2015) conducted in the vicinity of the five suspected source areas.

3.1 Soil and Groundwater Sample Probes

Soil probes were advanced utilizing direct push technology for the purpose of collecting soil and groundwater samples. The following probes were advanced at the Site (illustrated on Figure~~s~~ 2):

- 35 borings (each designated as B1/W1, B2/W2, or B3/W3) advanced between March and May 2009. The borings were advanced on the Tall Sales, Eclipse Electric, MinValco*, Lighting Plastics*, Family Digest*, Pampered Pooch*, Kaufenberg*, Ace Supply*, Care Cleaners, Techna Graphics*, Bryant Graphics*, and Prof. Instruments properties*.

- 7 borings (SB-1 to SB-7) advanced on December 9 to 11, 2013 at the EPS Printing property

- 6 borings (SB-1 to SB-6) advanced on January 29 to February 3, 2014 near the former Flame Metals property.*

- 7 borings (B-1 to B-7) were advanced in the vicinity of the former Super Radiator Coils Tube Fab Division and former Super Radiator Coils/current Tall Sales buildings. Borings B-1 to B-3 were advanced on April 21-22, 2014; borings B-4 to B-6 were advanced on April 16-18, 2014; and boring B-7 was advanced on April 24, 2014.

- 11 borings (B-6 to B-16) advanced on January 12-28, 2015 east and southeast of the former Super Radiator Coils building; and

- 3 borings (B-17 to B-19) advanced on January 23-27, 2015 near the former National Lead Dump.*

* Based on the data collected from these investigations, the MPCA does not consider these sites as suspected source areas.

3.1.1 Soil Characterization and Sampling

Continuous soil cores were collected at each probe location and detailed logs were made for each borehole. The boring log data were used to interpret selected areas of Site stratigraphy in the suspected source areas, and the data is illustrated on Figures 3.A and 3.B. Due to data gaps, a figure depicting Site-wide stratigraphy is not available.

The uppermost soil encountered in the borings generally consisted of sand and silty sand with varying amounts of gravel. Discontinuous clay lenses were also noted throughout the areas investigated.

Soil samples were screened in the field for organic vapors. Selected soil samples were submitted for laboratory analysis for VOC (EPA method 8260B). Soil sample laboratory analytical results are summarized on Table 1.

Soil impacts (defined as exceeding established Minnesota soil reference values [SRVs] or soil leaching values [SLVs]) were identified at the Eclipse Electric, former EPS Printing, and former Super Radiator Coils properties (figure 2). Due to data availability issues, a figure denoting Site-wide analytical results is not provided. However, a figure depicting soil analytical results for the former EPS Printing property (a suspected source area) is included as Figure 4. Impacts included the following:

- PCE was detected in a soil sample collected near a back door at Eclipse Electric (6512 Walker St.) in B-2 at a concentration of 35,200 µg/kg. The sample was collected three feet below ground surface, and the concentration exceeded the Tier 1 SLV.

- Former EPS Printing: PCE was detected in soil samples SB-3 (4'), SB-4 (4'), SB-5 (40'), SB-6 (40'), and SB-6 (45') at concentrations ranging from 107 to 3,900 micrograms per kilogram (µg/kg). The concentrations exceeded the Tier 1 SLV of 41.5 µg/kg but did not exceed the residential or industrial SRV (72,000 µg/kg and 131,000 µg/kg, respectively).

- Former Super Radiator Coils: PCE was detected in soil samples B-4 (48'), B-5 (45'), B-5 (56'), B-8 (53'), B-8 (70'), B-9 (48'), B-9 (54'), B-9 (70'), B-10 (60'), B-11 (54'), B-12 (44'), and B-12 (68') at concentrations ranging from 57.5 µg/kg to 9,080 µg/kg. The concentrations exceed the Tier 1 SLV, but did not exceed the residential or industrial SRV. cis-DCE was also identified in soil sample B-7

3.1.2 Groundwater Sampling

Groundwater samples were collected from selected boring locations. At each sample location, a temporary well was installed constructed of one inch diameter PVC well casing and five foot long PVC well screen. The top of the well screen was set near the water table surface. Multiple four-foot screened intervals were used at various starting depths ranging from 11' bgs to 91.5' bgs.

Groundwater samples were collected using a stainless steel check valve and polyethylene tubing (manual inertial pumping) into laboratory-supplied sample containers. Groundwater samples collected from the temporary wells were analyzed for VOC (Method 8260B). Note that several petroleum-related VOCs were detected in groundwater samples. These detections may be associated with the Reilly Tar facility, and are not discussed in this document. Laboratory analytical results from the temporary wells are summarized on Table 2. Selected areas and sample results from the suspected source area are illustrated on Figure 5. Figure 5.C denotes Site-wide analytical results.

Identified chlorinated solvent groundwater impacts (defined as exceeding state HRL/HBVs or federal MCLs included the following:

- Eclipse Electric: PCE concentrations ranging from 3.0 to 1,800 µg/L in samples W-1, W-2 and W-3. The HBV for PCE is 4 µg/L, and the MCL is 5 µg/L.

- MinValco*:* TCE at a concentration of 6.9 µg/L in groundwater sample W-1. The HBV for TCE is 0.4 µg/L, and the MCL is 5 µg/L.

- Family Digest: TCE concentrations ranging from 5.4 µg/L to 100 µg/L detected in samples W-1, W2 and W-3. cis-DCE and trans-DCE concentrations of 76 µg/L and 200 µg/L (respectively) were detected in sample W-2. The HBV and MCL for cis-DCE are 6 and 70 µg/L, and the HRL and MCL for trans-DCE are 40 and 100 µg/L.

- Pampered Pooch: TCE at a concentration of 68 µg/L in sample W-3.

- Kaufenberg: TCE, cis-DCE and VC concentrations of 6.9, 3,200 and 120 µg/L (respectively) in sample W-1. The HRL for VC is 0.2 µg/L and the MCL is 2 µg/L.

- Ace Supply: VC at a concentration of 1.4 µg/L in sample W-2.

- Bryant Graphics: PCE at a concentration of 58 µg/L in sample W-1.

- Prof. Instrument: PCE at a concentration of 12 µg/L in sample W-2.

- Former EPS Printing: PCE at concentrations ranging from 4.8 to 2,400 micrograms per liter (µg/L). TCE was detected at concentrations ranging from 0.96 to 11.8 µg/L. Degradation compounds of PCE/TCE (cis-DCE, trans DCE, and VC) were also detected in several of the samples at concentrations exceeding their respective HRLs.

- Former Super Radiator Coils Tube Fab Division: TCE was detected at a concentration of 9.4 µg/L in groundwater sample B-1 (38-42').

- Former Super Radiator Coils: PCE, TCE, cis-DCE, trans-DCE, and VC were identified in exceedance of HRLs in multiple samples collected from 36-40 feet, 40-44 feet, 42-46 feet, 44-48 feet, 46-50 feet, 50-54 feet, 52-56 feet, 55-59 feet, 64-68 feet, 66-70 feet, 69-70 feet, 71-75 feet, and 76-80 feet. The highest concentrations were 21,000 µg/L (PCE), 150 µg/L (TCE), 4,800 µg/L (cis-DCE), 110 µg/L (trans-DCE) and 240 µg/L (VC).

- Former National Lead Dump*:* VC was identified at concentrations ranging from 1.6 µg/L to 14 µg/L in four samples collected from 38-42 feet, 56-60 feet, 61-65 feet, and 64-68 feet.

Of the chlorinated solvent groundwater impacts identified above only Eclipse Electric, Former EPS Printing, Super Radiator coils Tube Fab Division and Super Radiator Coils are considered potential sources.

3.2 Groundwater Monitoring Network

Monitoring wells were not installed as part of the source identification investigation activities. An existing network of monitoring wells, irrigation wells, industrial wells, and municipal water production wells, used in connection with the Reilly Tar facility, was utilized instead. The network consists of St. Louis Park municipal water production wells, (SLP1, SLP2, SLP3, SLP4, SLP5, SLP6, SLP10, SLP11, SLP12), monitoring wells (W18, W20, W21, W23, W27, W33, W101, W105, W117, W119, W120, W121, W129, W130, W131, W132, W133, W136, W143, W420, W421, W422, W427, W431, W433, W434, W437, W438, and W439), Hardcoat Inc. industrial well (W29), Methodist Hospital irrigation well (W48 abandoned 2015) Edina Country Club irrigation wells (ECC #2, and ECC #3), and Edina municipal water production wells (E2, E6, E7, E13, E15). Well construction details, where available, are provided on Table 3.

3.3 Monitoring Well Sampling

Monitoring well groundwater sampling events were conducted by the MPCA in April to June 2013 (AECOM, 2013A), and May 2014 (AECOM, 2014C). Groundwater elevations were also obtained in January 2015 (AECOM, 2015); no samples were collected during this event. Select groundwater samples were analyzed in the field for temperature, pH, conductivity, and oxygen/reduction potential in 2013, 2014 and 2015. Groundwater samples were submitted for laboratory analysis of VOCs (Method 8260). Sample analytical results from the monitoring wells are summarized on Table 4.

3.4 Site Hydrogeology

The most recent groundwater elevation measurements (2015) are presented on Table 5. A groundwater elevation contour map (Figure 6) was created using this data. The map illustrates an east-southeasterly groundwater flow direction in the drift aquifer, consistent with historical information. The horizontal hydraulic gradient calculated along the flow line was 1×10^{-3}.

Figures 3.A and 3.B illustrate the soil stratigraphy and groundwater elevations across transect lines in select areas of the Site.

3.5 Groundwater Analytical Results

As discussed above, groundwater samples were collected from both temporary monitoring wells and from permanent monitoring wells. The analytical results are summarized on Tables 2 and 4, and select areas are illustrated on Figure 5. Chlorinated solvents, most notably PCE, were detected in multiple groundwater samples collected at the Site. The contamination was noted in multiple aquifers, and encompasses a large areal extent of St. Louis Park (Figure 7). The primary area of groundwater contamination appears to be in the vicinity of the Former Super Radiator Coils/current Tall Sales building and Eclipse Electric.

The groundwater concentration of PCE in some locations at this site (maximum PCE 21 mg/L) is greater than 1% of the aqueous solubility of PCE ($1\%S_{PCE}$ = 1.5 mg/L) and thus may be indicative of non-aqueous phase liquids (Schwille, 1988 and Mercer 2010). In addition to PCE, TCE (160 µg/L), cis-DCE (14,000 µg/L), and VC (240 µg/L) were detected at concentrations in excess of regulatory limits near the suspected source areas. PCE, TCE, cis-DCE, and VC were also detected in municipal water production wells throughout the Site. Maximum recent concentrations were 10 µg/L, 108 µg/L, 190 µg/L, and 62 µg/L (respectively).

3.6 Initial Soil Vapor Intrusion Assessment

Although vapor intrusion is not a component of the Hazard Ranking System (HRS), vapor intrusion assessment (VIA) activities were also completed by the MPCA in 2006, 2009, 2014 and 2015 to evaluate the potential for VOC soil vapors in the subsurface below Site buildings near the suspected source areas. Activities included:

- The advancement of 22 temporary soil vapor probes in November 2006 (SVP1 to SVP22) to a depth of 8 feet. The probes were advanced throughout the Elmwood, Brooklawns, Lenox, and Sorensen neighborhoods of St. Louis Park.
- The advancement of 35 temporary soil vapor probes between March and May 2009 (each designated as VP1, VP2 or VP3) to depths ranging from 8 to 10 feet. The probes were advanced on the Tall Sales, Eclipse Electric, MinValco, Lighting Plastics, Family Digest, Pampered Pooch,

Kaufenberg, Ace Supply, Care Cleaners, Techna Graphics, Bryant Graphics, and Prof. Instruments properties.

- The advancement of nine temporary soil vapor probes in February and March 2014 (VP-1 and VP-2 [two probes each], VP-3 through VP-5, SB-1-VP, and SB-3-VP) to depths ranging from 7 to 8 feet. The probes were advanced near suspected source areas (Flame Metals and Eclipse Electric).

- The installation and sampling of 99 permanent soil vapor monitoring points (constructed to a depth of 8 feet) in March to April 2014 in the Elmwood (VP-001 through VP-004, VP-101 through VP-117, VP-201 through VP221, and VP-302 through VP-319), Lennox (VP-401 through VP-409, VP-501 through VP-511, VP-601 through VP-613), and Sorensen (VP-701 through VP-706) neighborhoods..

- The sampling of 51 sub-slab soil vapor monitoring points (constructed to a depth of 8 feet) installed in commercial buildings in the Lenox and Elmwood neighborhoods, and in the vicinity of Eclipse Electric (MVSS-1 through MVSS-8, SSV-1, through SSV-6, SSV-8, SSV-9, SSV-11, SSV-13 through SSV-23, PPSS-1 through PPSS-4, TSSS-1 through TSSS-6, SSV-MN, SSV-MS, SV-MN2, SSV-MS2) from March to May 2014, December 2014, and March 2015.

- The collection of six indoor air samples (MIA-1, MIA-2, and MVIA-1 through MVIA-4) in two commercial buildings near the suspected source area in March 2015.

- Inspection of selected residences with sub-slab vapor mitigation systems installed by the EPA in 2008. Inspections occurred in March 2014 and March 2015.

- The advancement of numerous passive soil-vapor samplers (Gore Sorbers) 2007 to 2014 in the vicinity of the suspected source areas.

Selected investigation locations are illustrated on Figures 2.F to 2.H. All soil vapor samples were collected directly into six liter Summa® canisters and submitted for chemical analysis utilizing the EPA TO-15 method for the compounds in the Minnesota Soil Gas List.

Soil vapor analytical results are summarized in Tables 6, and 7. Analytical results noted the following:

- Soil vapor data collected in 2007 identified VOCs at all sampled locations. Benzene, PCE, TCE, and 1,2,4-trimethylbenzene were consistently detected at concentrations exceeding screening values. Concentrations exceeded the screening values by ten to over one thousand times in the suspected source areas and in the Brooklawns neighborhood.

- Soil vapor data collected in 2009 identified nine sites (Tall Sales, Eclipse Electric, MinValco, Lighting Plastics, Pampered Pooch, Kaufenberg, Ace Supply, Care Cleaners, Prof. Instruments) with PCE and TCE concentrations above 10X the screening values. Sites with the highest soil vapor VOC concentrations were Eclipse Electric and Care Cleaners.

- *Eclipse Electric (2014 to 2015):* PCE was detected at concentrations exceeding 100x the Industrial/Commercial Intrusion Screening Value (ISV) and acute ISV in the temporary soil vapor probes. Sub-slab samples identified PCE and TCE at concentrations exceeding the 10X Industrial/Commercial and acute ISVs.

- *Elmwood Neighborhood (2014 to 2015):* Chlorinated solvents were not identified at concentrations exceeding 100X the residential ISV in the samples collected.

- *Lennox Neighborhood (2014 to 2015):* Chlorinated solvents were not identified at concentrations exceeding 10X or 100X the residential ISV for the residential permanent and sub-slab samples. TCE was identified in two industrial properties: MinValco and Marathon. A sub-slab sample and an indoor air sample from MinValco exceeded the 10X Industrial ISV. Two sub-slab samples from Marathon identified TCE at concentrations exceeding the 10X Industrial ISV; however, indoor air samples did not exceed the 10X Industrial ISV.

- *Sorenson Neighborhood (2014 to 2015):* Chlorinated solvents were not identified at concentrations exceeding 100X the residential ISV in the samples collected.

- Passive soil-vapor samples identified several "hot-spots" coincident with the suspected source areas.

4.0 PRELIMINARY EXPOSURE PATHWAY ASSESSMENT

As part of the preliminary assessment process, potential exposure pathways were evaluated for the site. The pathways evaluated include surface water, direct soil contact, air, groundwater, and drinking water. The Site contains multiple land uses, including but not limited to: residential, commercial, industrial, recreational, and vacant. Public access to the Site and nearby properties is generally not restricted. Public access to the buildings is limited by locked doors.

4.1 Surface Water

Meadowbrook Lake is present in the western portion of the Site, and Minnehaha Creek is present in the western and southern portions of the Site. Numerous smaller natural surface water bodies are present within 1,000 feet of the Site, most notably to the west and south (Figure 1). Exposure risk to surface water at the Site itself appears to be limited, as the majority of the Site is covered with pavement or buildings.

Additionally, Minnehaha Creek (which discharges to the Mississippi River) is not present within the identified suspected source areas. Depending upon contaminant loading to Minnehaha Creek, there may be potential for exposure risk at the Mississippi River. Shallow soil sampling results did not indicate the presence of contaminants that could be entrained in surface water runoff from the site. The data do not appear to suggest that any significant completed surface water exposure pathways exist at this site at this time.

4.2 Direct Soil Exposure

Significant concentrations of PCE are present in shallow soil (3') and deeper soil (40'-70') at the Site. The risk of direct soil exposure is not expected to be significant because most of the suspected source areas are paved or occupied by buildings at this time. In general, the shallower soil impacts appear to be isolated, and it is not expected that potential future development work would entail excavation of deeper contaminated soil. Therefore, it appears that the risk of direct soil exposure by occupants, workers, residents, or the public is low.

However, if redevelopment in the shallower soil (such as for building foundations, etc.) were to occur, the potential exists to encounter contaminated soil, which would lead to an increased risk of direct soil exposure to workers, residents, and/or building occupants.

4.3 Soil Vapor

Temporary soil vapor boring, sub-slab soil vapor, and indoor air sample testing results indicate that chlorinated volatiles are present in the soil gas at this site at concentrations that exceed risk-based regulatory criteria (Table 8). Multiple vapor mitigation systems were installed by the EPA in 2008, and the MPCA is continuing to install additional mitigation systems in the vicinity of the suspected source areas. Additionally, the MPCA continues to monitor permanent soil vapor monitoring points in residential neighborhoods to evaluate risk to nearby residences. At this time, soil vapor is not an exposure pathway recognized in the Hazard Ranking System scoring process under CERCLA.

4.4 Groundwater

Groundwater sampling results indicate that chlorinated volatiles are present in the groundwater at this Site at concentrations that exceed regulatory criteria (Table 4), as evidenced by concentrations detected in the monitoring well network utilized for the Reilly Tar Site (Figure 2). Groundwater contamination is known to exist in the drift, OSP and OPCJ aquifers, and encompasses a large areal extent of St. Louis Park and Edina (Figure 7). Risk of direct exposure (ingestion) to contaminated groundwater at this site appears to be fairly high because 135 registered domestic supply wells are within ½ mile of the Site, and there are an additional 119 registered domestic supply wells within one mile of the Site. However, there may be additional water supply wells nearby that were installed before well registration was required (1974).

Populations and Water Supply Wells Located Within 4 Mile Target Distance Limit

Distance from Site	Population Within Distance Zones	Public Water Supply Wells	Commercial/ Industrial/ Irrigation Supply Wells	Domestic Supply Wells
0 to ¼ mile	20,181	7	35	90
¼ to ½ mile	10,290	4	6	45
½ mile to 1 mile	28,561	14	8	119
1 mile to 2 miles	59,177	38	24	172
2 miles to 3 miles	96,312	42	68	346
3 miles to 4 miles	113,944	66	61	461
Total within 4 miles	328,465	171	203	1233

Populations developed from 2010 US Census block group data. Well information derived from Minnesota Department of Health County Well Index data.

4.5 Drinking Water

The extent to which shallow ground water influences local surface water quality has not been determined at this time. Regional groundwater flow in this area is to the east-southeast toward the Mississippi River, located approximately 7.2 miles from the Site. The Mississippi River serves as the sole drinking water source for the city of Minneapolis (population 382,578; 2010 census). Although the Minneapolis boundary is just 1.35 miles east of the Site the nearest major water intakes for municipal water supplies lie several miles upstream from the Minnehaha Creek outfall. Municipal water intakes on the Mississippi river downstream from the Minnehaha Creek outfall are more than 15 river-miles downstream.

Contaminated groundwater at the Site has migrated downward through the drift, OSP and OPCJ aquifers, which serve as the principal water supply aquifers to the area. Cities, within four miles of the Site, that obtain their water supply from groundwater include St. Louis Park, Edina, Hopkins, Plymouth and Minnetonka. There are currently 35 registered commercial water supply wells and seven public water supply wells located within ¼ mile of the site (Figure 8). Within ½ mile of the site lie six more commercial and four more public water supply wells. Within ½ to one mile of the site, there are 14 additional public supply wells and 8 commercial supply wells. The population within ½ mile of the site is approximately 30,471; all are served by municipal water supply. Between one mile and four miles of the site, there are 146 more public water supply wells, 153 commercial supply wells, and 979 additional domestic supply wells. In total, there are 328,465 people served by groundwater within a four mile radius of the Site.

In samples collected from St. Louis Park (SLP) Treatment Plant 4, concentrations of VC have consistently exceeded the HRL since 2004, and have exceeded the MCL 10 times since 2007. cis-DCE has also exceeded the HBV in samples collected from 2009 to present, and TCE concentrations have also exceeded the HBV seven times since 2009 (MDH Data received 8/12/15, Appendix A). VC and TCE concentrations have exceeded the MCL, and cis-DCE concentrations have exceeded the HBV in samples collected from municipal supply well SLP 6 since 2004 (AECOM 2013A). However, SLP6 is designated an emergency back up well and does not currently supply water to the municipal system. The water from SLP6 can be used for emergency supply if approved by the Minnesota Department of Health.

VC concentrations exceeded the MCL in multiple samples collected from Edina municipal well E7 in 2004. Due to the elevated VC concentrations well E7 was shut down until a treatment system could be constructed. Elevated concentrations of VC, above HRL/HBV, were detected in samples collected from Edina municipal wells E2, E13 and E15; The Edina water treatment system with air stripping technology came on line September 2012.

The interactions of groundwater and surface water are not understood at this time. However, multiple potable water supply wells are in close proximity to the Site, in an area of known groundwater contamination (Figure 7) present in principal drinking water aquifers. It appears that the exposure risk resulting from the site via the groundwater/drinking water pathway is significant.

5.0 CONCLUSIONS

Site investigation work indicates that potential sources of VOC contamination are present in an area near Edgewood Avenue and Oxford Street in St. Louis Park. The data derived from the investigations indicates initial discharges in the suspected source areas migrated downward through porous site soils, eventually coming into contact with the groundwater table.

Soil, groundwater, and soil vapor concentrations from beneath Site buildings indicate that dense non-aqueous phase liquid (DNAPL) may be present beneath the suspected source areas. The presence of dense non-aqueous phase liquid (DNAPL) is considered likely when a concentration exceeds 1% of a compound's aqueous solubility (EPA, 2004). At this time, there is not sufficient data available to determine the extent and magnitude of any potential DNAPL source areas. Additional investigation is necessary to determine the extent and magnitude of the release and the suspected source areas.

PCE and/or its degradation daughter products have been detected at concentrations exceeding acceptable regulatory limits in several monitoring wells and municipal water supply wells throughout the Site. Several potential source areas are currently under investigation. However, there is not sufficient data available to characterize the potential for human health or environmental exposure.

6.0 REFERENCES

AECOM, 2015, St. Louis Park Investigation, April 1, 2015, prepared by AECOM for MPCA, 1577 pages.

AECOM, 2014, Site Investigation Report, St. Louis Park Solvent Plume-Former EPS Printing, 6518 Walker Street, St. Louis Park, February 25, 2014, prepared by AECOM for MPCA, 197 pages (AECOM, 2014A).

AECOM, 2014, Site Investigation Report for St. Louis Park Solvent Plume-Former Flame Metals, June 19, 2014, prepared by AECOM for MPCA, 264 pages (AECOM, 2014B).

AECOM, 2014, Site Investigation Report, St. Louis Park Investigation, St. Louis Park, July 1, 2014, prepared by AECOM for MPCA, 1663 pages (AECOM, 2014C).

AECOM, 2013, VOC Sampling of the Edina and St. Louis Park Wells in FY2013, June 30, 2013, prepared by AECOM for MPCA, 380 pages (AECOM, 2013A).

AECOM, 2013, Passive Soil Vapor Survey Investigation at 6425 Oxford Street and 6518 Walker Street in St. Louis Park, Minnesota, January 31, 2013, prepared by AECOM for MPCA, 202 pages (AECOM, 2013B).

AECOM, 2012, Passive Soil Vapor Survey at the Former Flame Metals Site, Continuation of Investigating Potential Sources of Chlorinated VOCs in St. Louis Park, Minnesota, March 27, 2012, prepared by AECOM for MPCA, 83 pages.

AECOM, 2011, Passive Soil Vapor Survey Investigation at Tall Sales Site Documentation Report-Continuation of Investigating Potential Sources of Chlorinated VOCs, June30, 2011, prepared by AECOM for MPCA, 16 pages.

AECOM, 2010, VOC Sampling of the Edina and St. Louis Park Wells in 2010, June 30, 2010, prepared by AECOM for MPCA, 18 pages

AECOM, 2009, Investigation of the Potential Sources of Chlorinated VOCs, St. Louis Park, Minnesota, June 30, 2009, prepared by AECOM for MPCA, 1068 pages.

AECOM, 2008, St. Louis Park/Edina Groundwater VOC Contamination Study – Task 1002: St. Louis Park/ Edina/ Hopkins Groundwater VOC Data Review, December 31, 2008, prepared by AECOM for MPCA, 236 pages.

Balaban, N.H., 1989, C-04 Geologic Atlas of Hennepin County, Minnesota, Minnesota Geological Survey, retrieved from the University of Minnesota Digital Conservancy, http://purl.umn.edu/58491.

Mercer, James W. et. al., 2010 "DNAPL Site Characterizations Issues at Chlorinated Solvent Sites." In *In-Situ Remediation of Chlorinated Solvent Plumes*. H.F. Stroo and C.H. Ward ed. Springer Buisness Media, LLC (2010) pp. 217-280.

Rzepecki, P. 2009, Hydraulic Gradient Fluctuations: Prairie du Chien-Jordan Aquifer System, East Central Hennepin County June 2007-March 2008. Minnesota Groundwater Association Newsletter, June 2009.

Schwille, F., 1988, Dense Chlorinated Solvents in Porous and Fractured Media, Model Experiments, translated by J.F. Pankow, Lewis Publishers, Chelsea, Michigan, 146 pp.

STS/AECOM, 2007, St. Louis Park Schools Soil Vapor Investigation, December 18, 2007, prepared by STS/AECOM for MPCA, 154 pages.

STS Consultants, 2007, St. Louis Park Soil Vapor Survey Results Report, February 16, 2007, prepared by STS for MPCA, 131 pages (STS, 2007A)

STS Consultants, 2007, St. Louis Park Soil, Soil Vapor and Groundwater Investigation, September 19, 2007, prepared by STS for MPCA, 134 pages (STS, 2007B).

STS Consultants, 2007, St. Louis Park/Edina/Hopkins Groundwater Volatile Organic Compounds, Contamination Study-2007, June 30, 2007, prepared by STS for MPCA, 405 pages (STS, 2007C).

STS Consultants, 2006, St. Louis Park W437 Chlorinated Solvent Source Investigation, March 13, 2006, prepared by STS Consultants for MPCA, 54 pages.

STS Consultants, 2006, City of Edina Well No. 7 Study – Phase III Report, August 2005-June 2006, June 30, 2006, prepared by STS Consultants for MPCA, 360 pages.

STS Consultants, 2005, Land Use and Source Characterization Survey-Edina Well Evaluation, May 27, 2005, prepared by STS Consultants for MPCA, 416 pages (STS, 2005a).

STS Consultants, 2005, City of Edina Well no. 7 Study-Phase II Report, March 2005 to June 2005, June 30, 2005, prepared by STS Consultants for MPCA, 230 pages (STS, 2005b).

STS Consultants, 2004, City of Edina Municipal Well 7 Packer Sampling Scope of Work, Methods and Procedures, August 23, 2004, prepared by STS Consultants for MPCA, 15 pages.

USEPA, 2004, In Situ Thermal Treatment of Chlorinated Solvents, Fundamentals and Field Applications, USEPA Office of Solid Waste and Emergency Response, EPA Document EPA 542-R-04-010, dated March 2004, 145 pp.

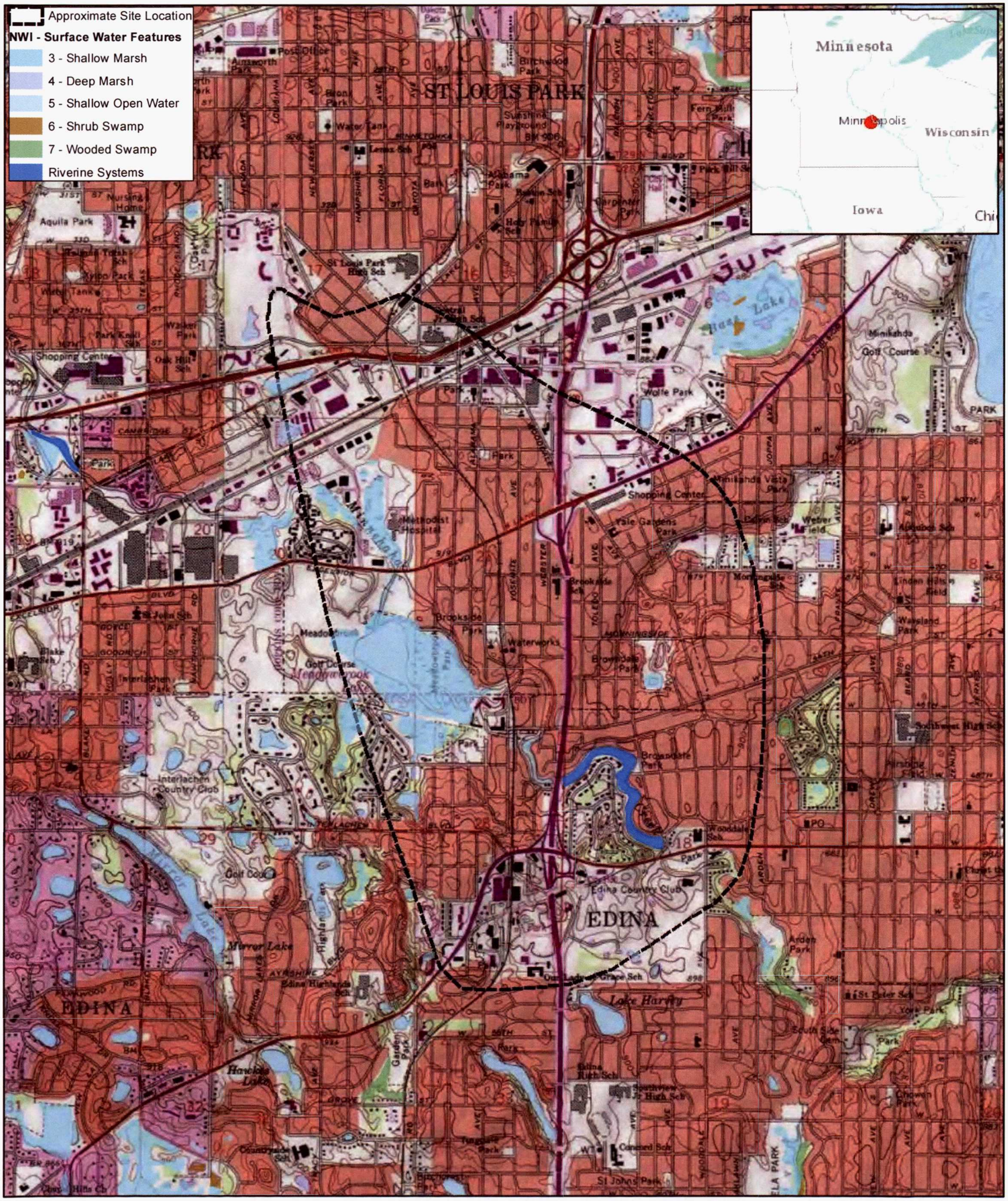
FIGURES

Minnesota Pollution Control Agency

Figure 1
Site Location
St. Louis Park Solvent Plume
St. Louis Park & Edina, Minnesota
MPCA SA4542, SR377, SR358

0 0.25 0.5 1 Miles

N



Minnesota Pollution Control Agency

Figure 2
Investigation Overview
West Metro Solvent Plume
St. Louis Park & Edina, Minnesota
MPCA SA4542, SR377, SR358

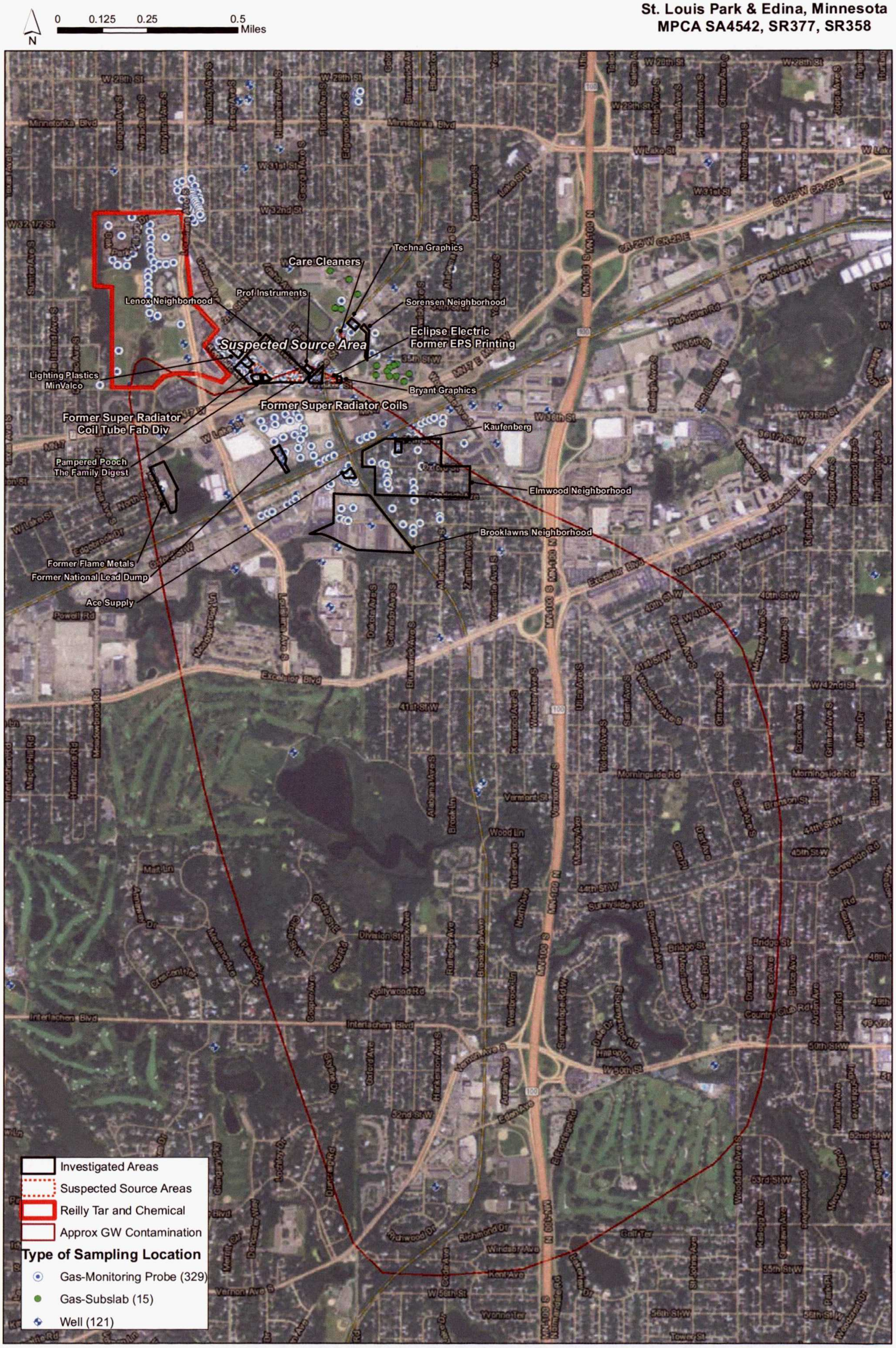
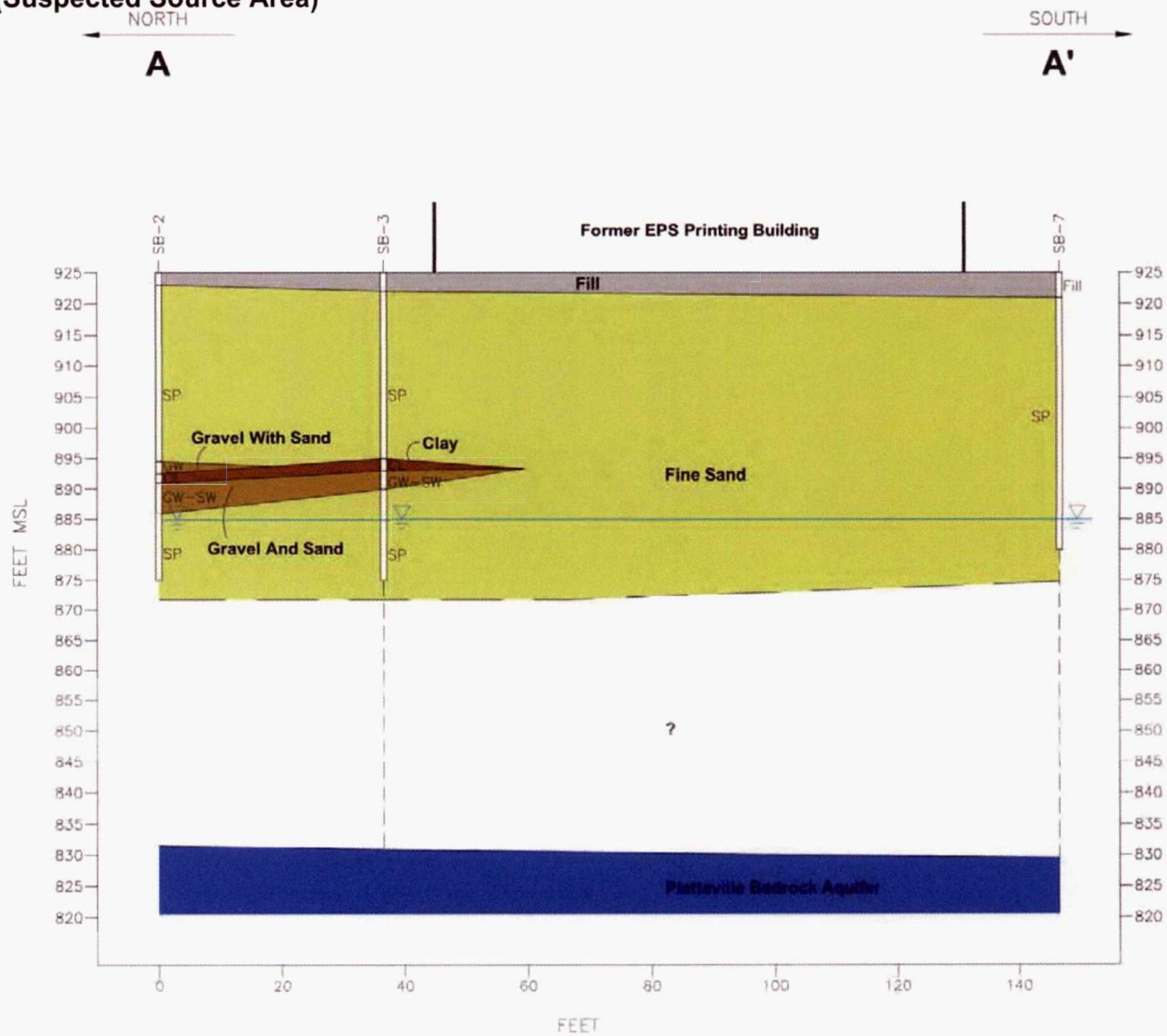


FIGURE 3A-Geologic Cross Section, EPS Printing (Suspected Source Area)



LEGEND

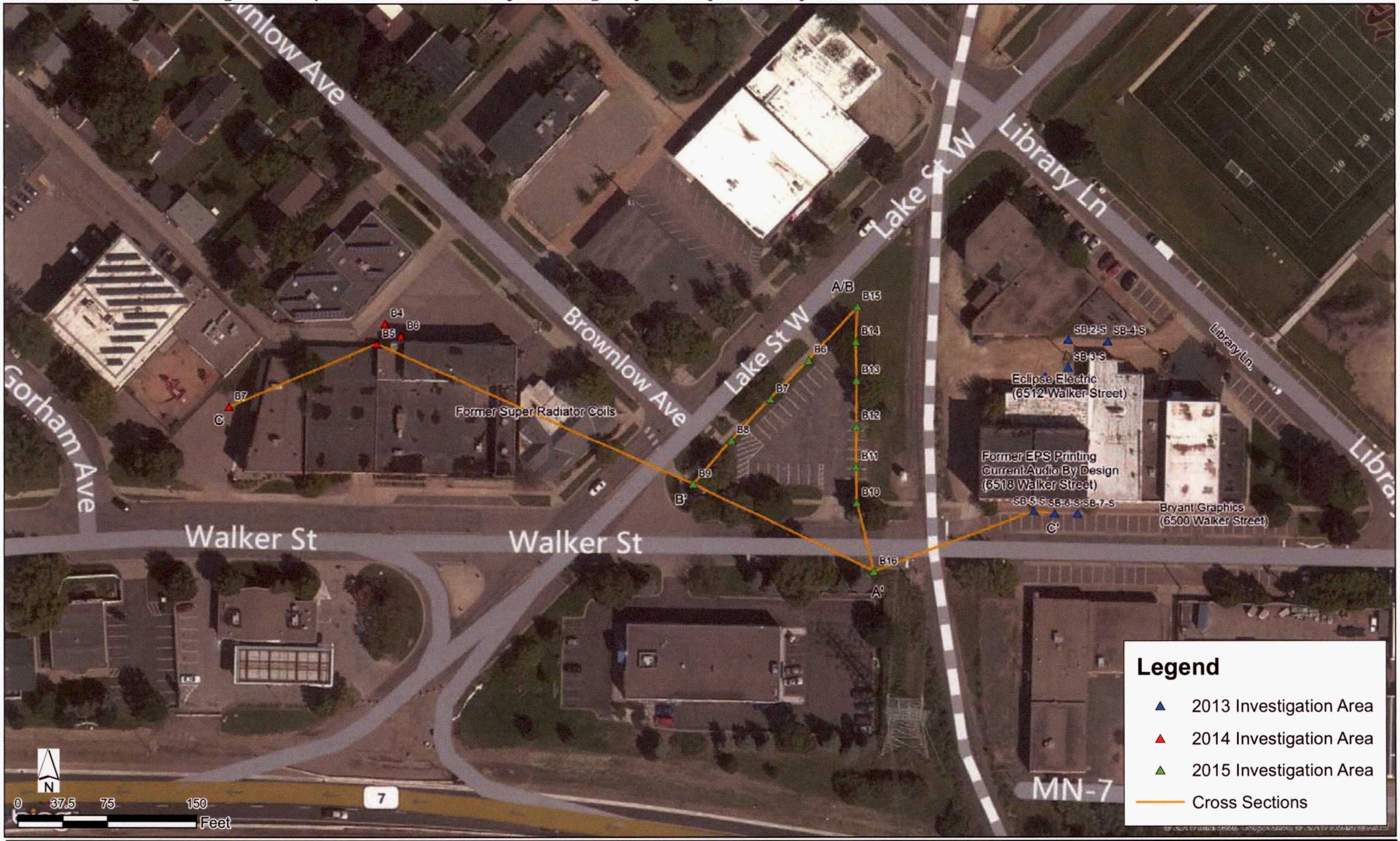
APPROXIMATE GROUNDWATER ELEVATION BASED ON GROUNDWATER BORINGS

GROUNDWATER BORING ADVANCED TO BEDROCK

AECOM

MPCA - Former EPS Printing 6518 Walker St, St. Louis Park, MN Project # 60309548	Cross Section A-A'
DATE: 02/18/14 · DRWN: TC/MN	FIGURE 3

Document Path: P:\Water_Env\MPCA\FY15_MPCA\FY15 Projects\60335087 St. Louis Park Investigation FY15\900_WorkingDocs-CAD\Figures GIS\SRC\Figure 4A - CS Loc.mxd



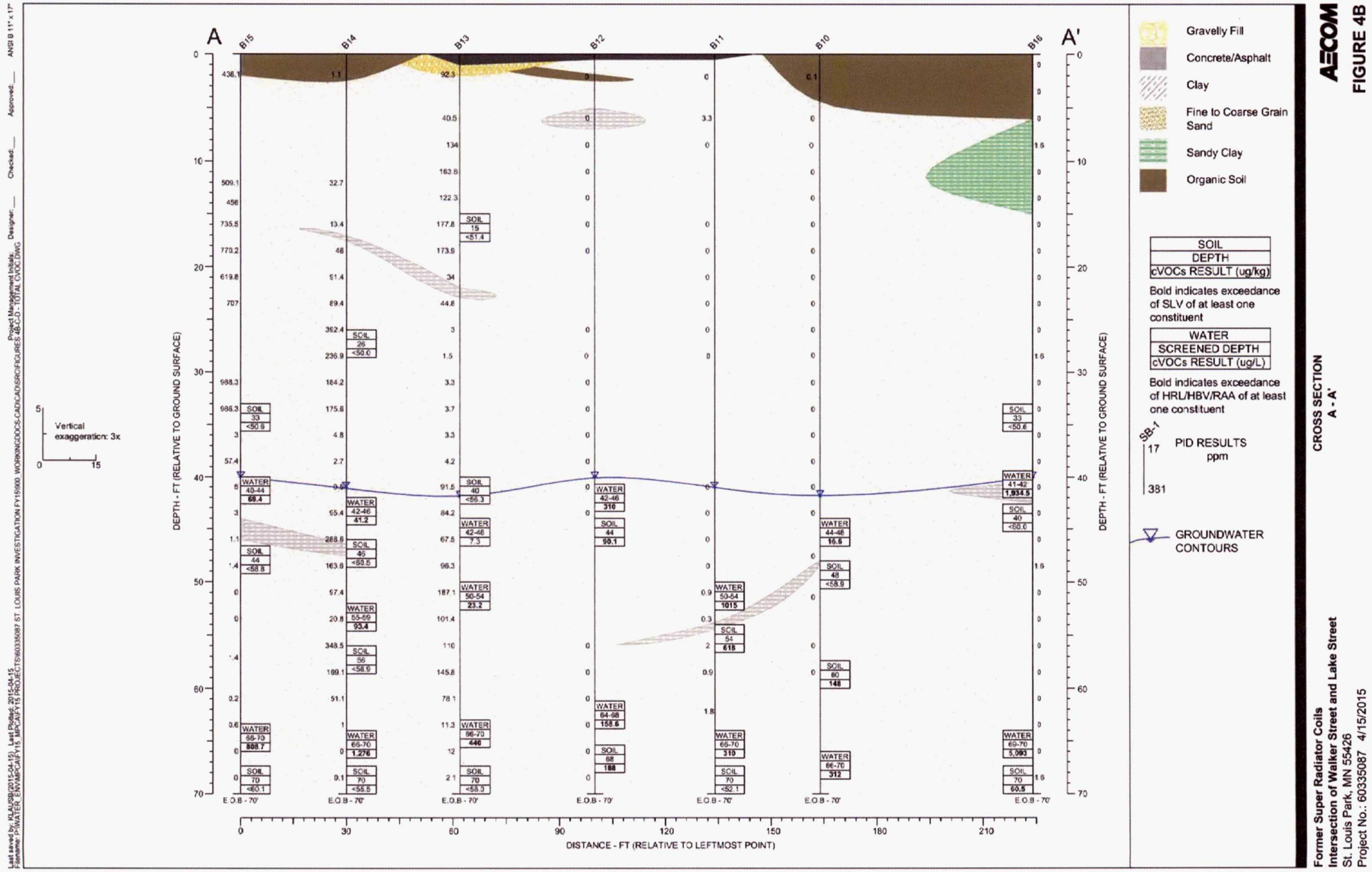
Former Super Radiator Coils
Intersection of Walker Street and Lake Street W
St. Louis Park, MN 55426
St. Louis Park, Minnesota
Project No.: 60335087 Date: 4/15/2015

Soil Boring/Monitoring Well

AECOM

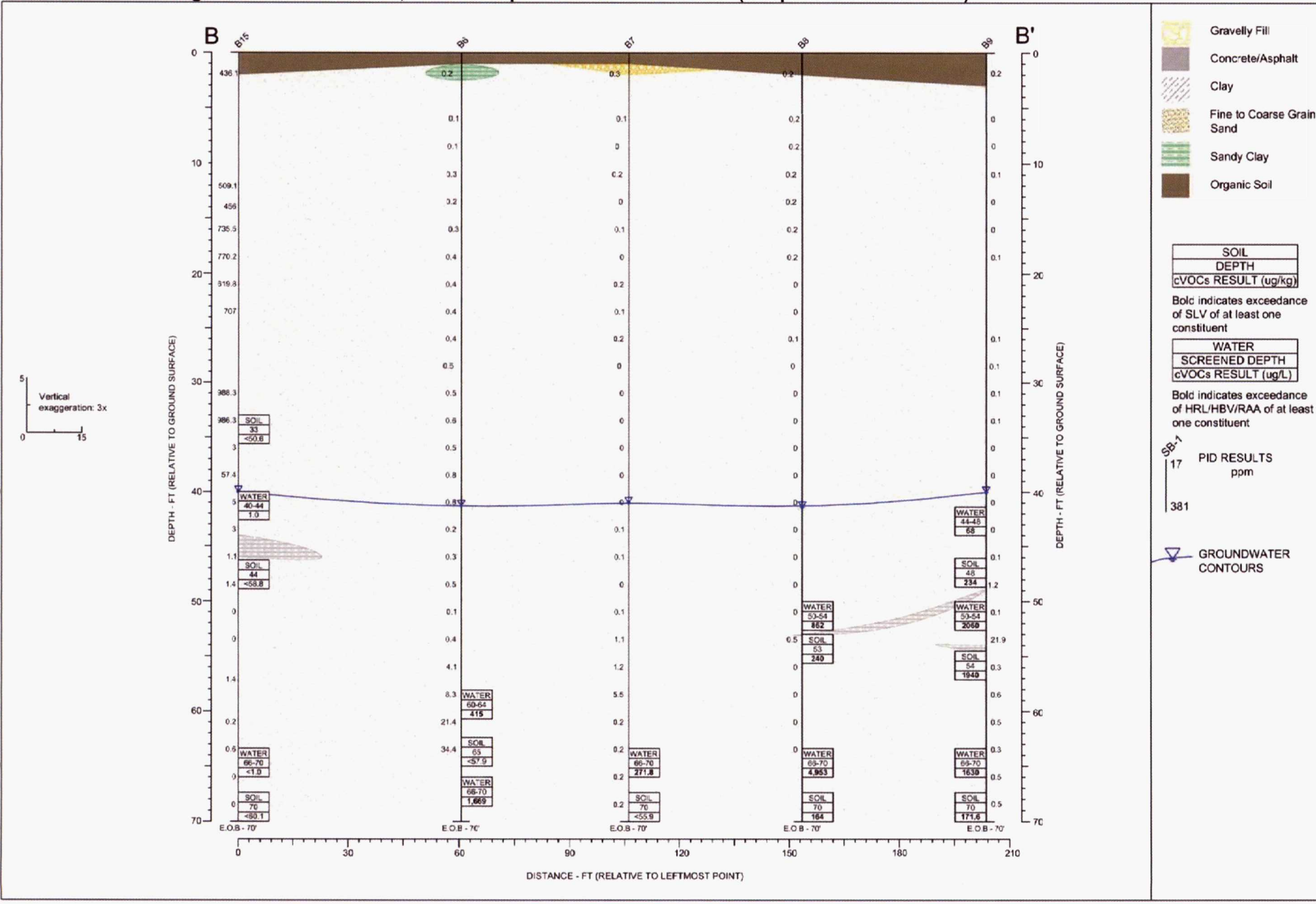
FIGURE 3B-Geologic Cross Section, Former Super Radiator Coils Area (Suspected Source Area)

FIGURE 3B.1-Geologic Cross Section A-A', Former Super Radiator Coils Area (Suspected Source Area)



Last saved by: KLAUSB(2015-04-15) Last Plotted: 2015-04-16
Filename: P:\WATER_ENV\MPCA\FY15_MPCA\FY15 PROJECTS\60335087 ST. LOUIS PARK INVESTIGATION FY15\900_WORKINGDOCS-CAD\CAD\SRC\FIGURES 4B-C-D - TOTAL CVOC.DWG
Project Management Initials: Designer: ___ Checked: ___ Approved: ___ ANSI B 11" x 17"

FIGURE 3B.2-Geologic Cross Section B-B', Former Super Radiator Coils Area (Suspected Source Area)



AECOM

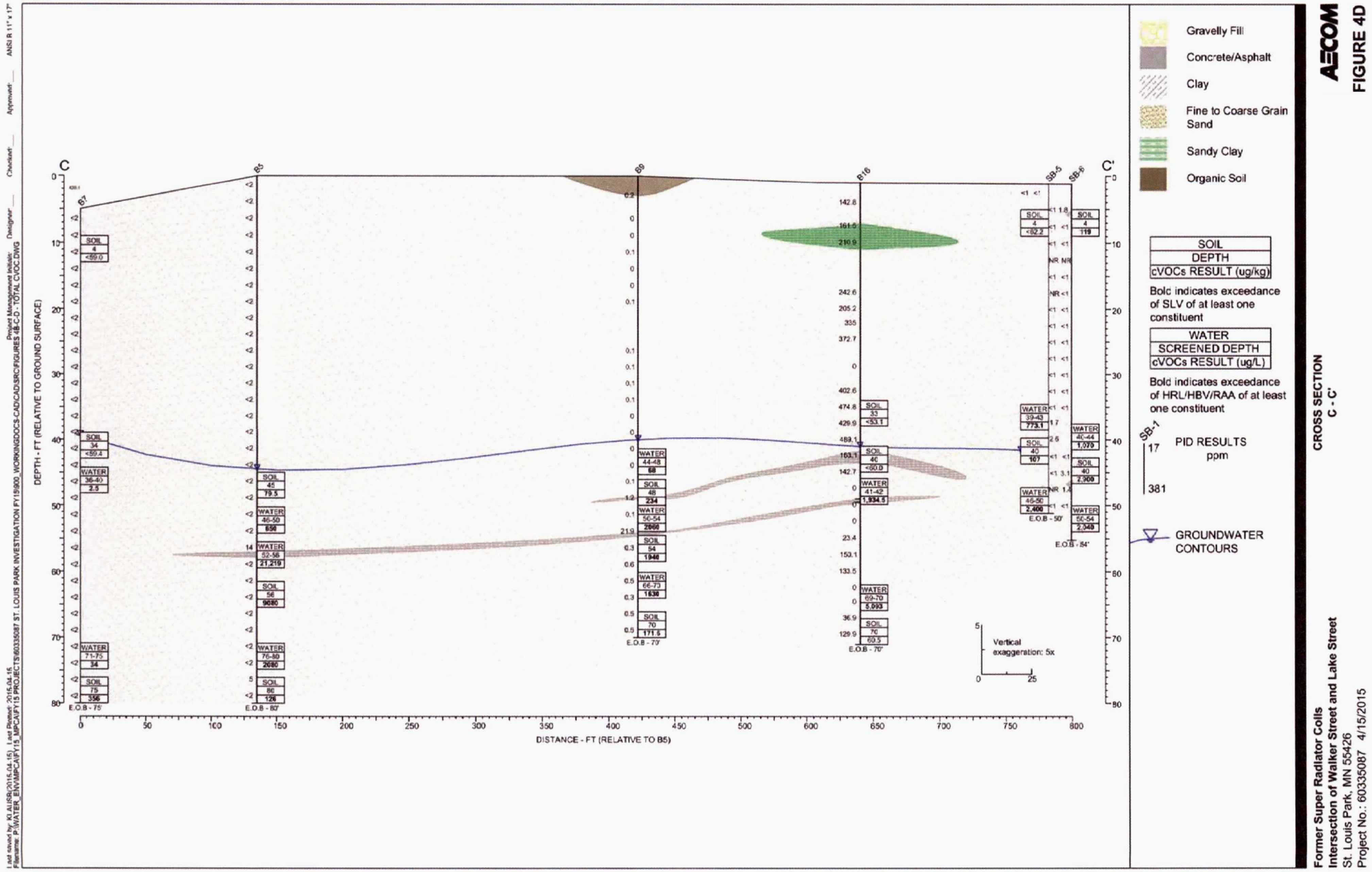
FIGURE 4C

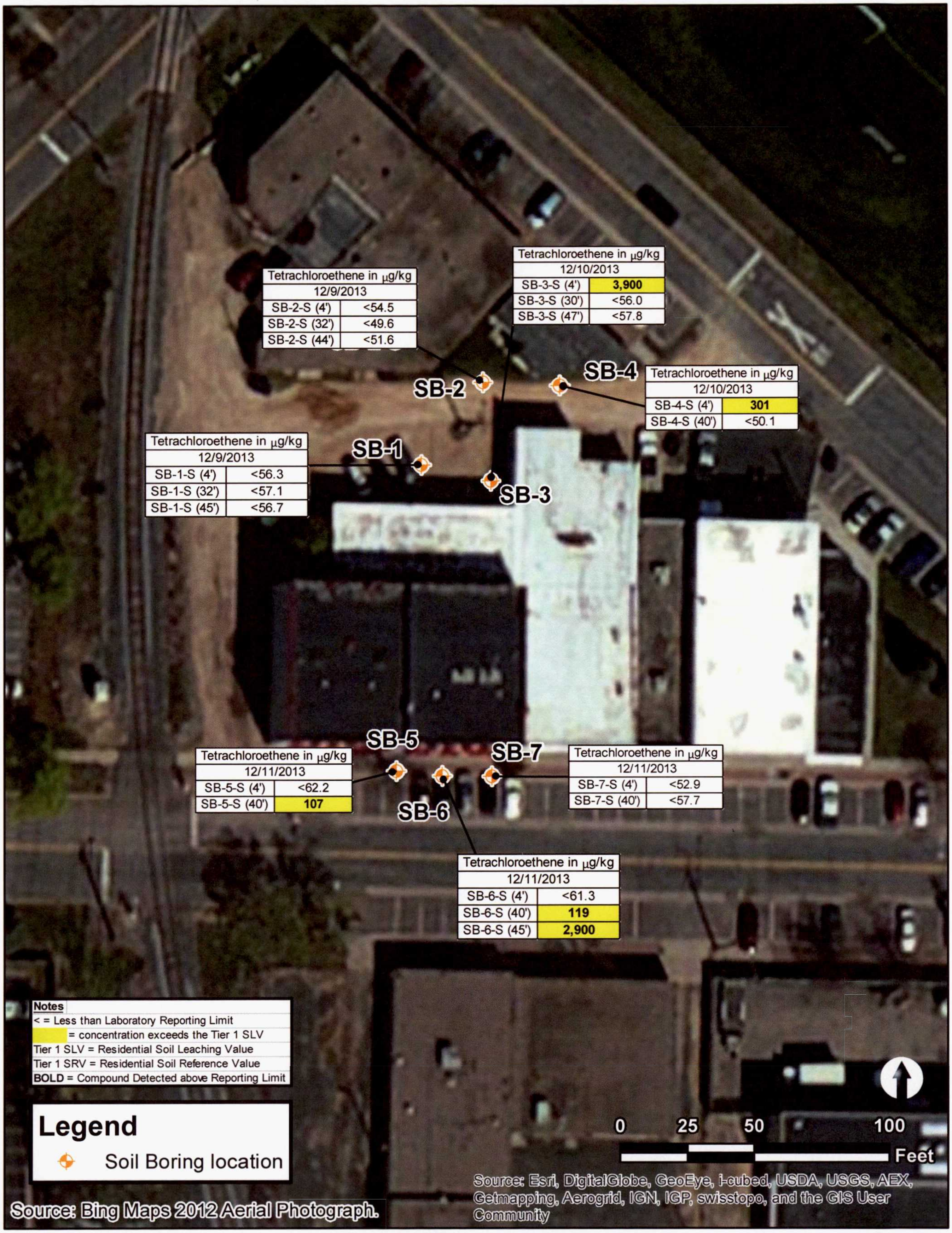
CROSS SECTION
B - B'

Former Super Radiator Coils
Intersection of Walker Street and Lake Street
St. Louis Park, MN 55426
Project No.: 60335087 4/15/2015

[redacted]

FIGURE 3B.3-Geologic Cross Section C-C', Former Super Radiator Coils Area (Suspected Source Area)





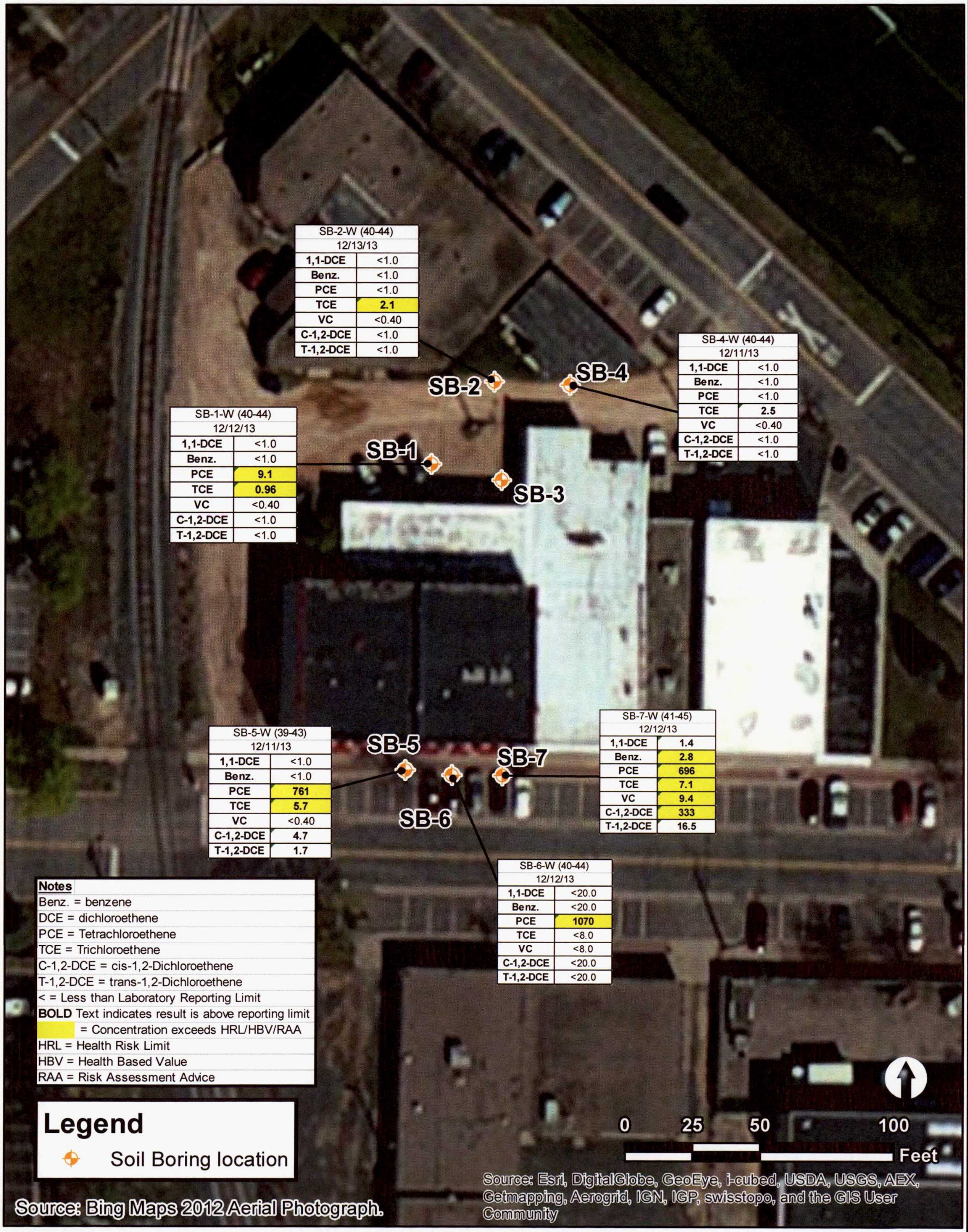
Last saved by: DIEDRICHB(2014-02-18)
Filename: J:\MPCA\FY14_MPCA\FY14 Projects\60309548 Audio by Design\900_WorkingDocs-CAD\GIS\Layout\140218\Fig4_SoilAnalyticalResults_140218.mxd

MPCA - Former EPS Printing
6518 Walker Street
St. Louis Park, Minnesota
Project No.: 60309548 Date: 2/18/2014

Soil Analytical Results
EPS Printing (Suspected Source Area)

AECOM

Figure: 4



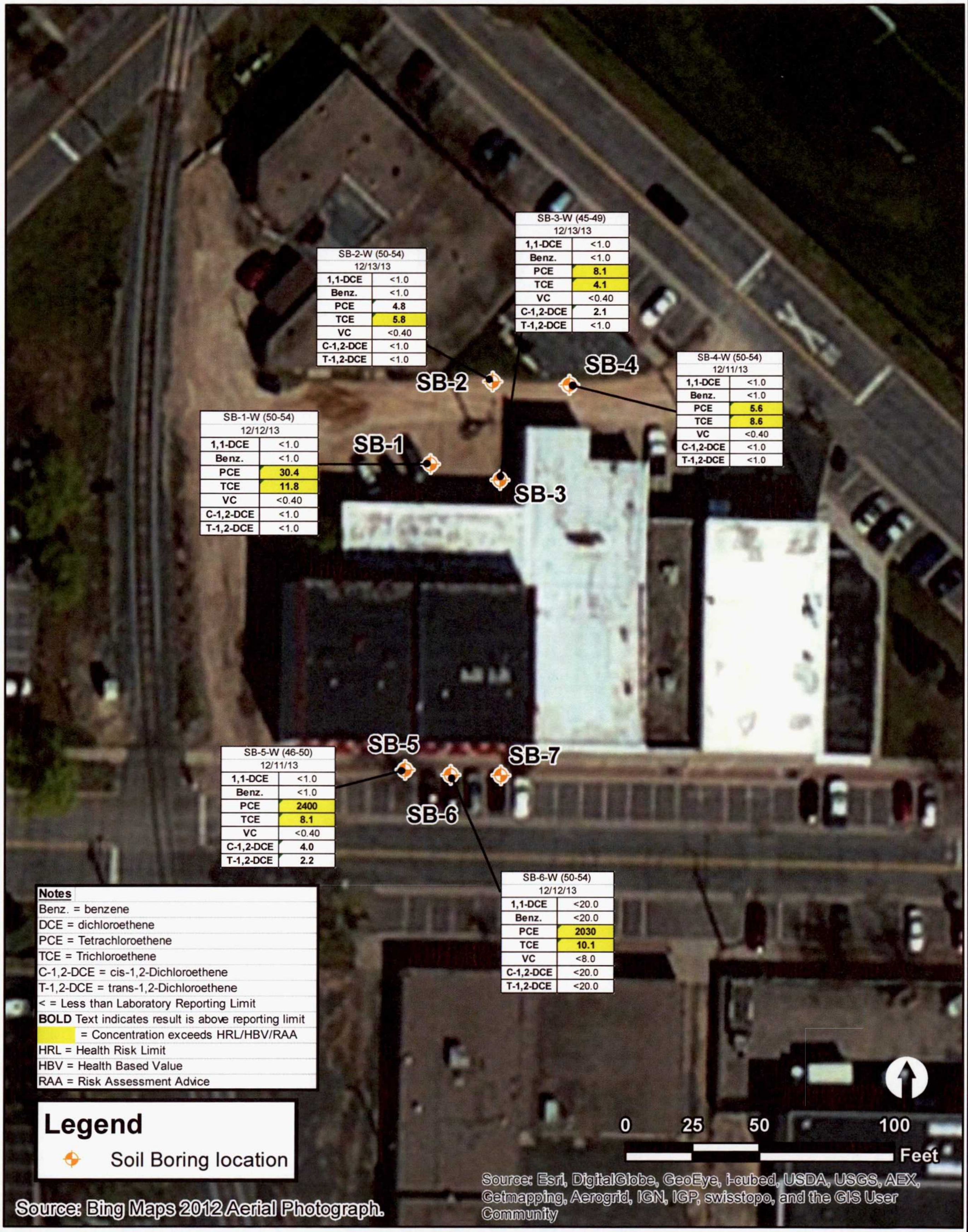
Last saved by: DIEDRICHB(2014-02-18)
Filename: J:\MPCA\FY14_MPCA\FY14 Projects\60309548 Audio by Design\900_WorkingDocs-CAD\GIS\Layout\140218\Fig5_GW_Results_WaterTable_140218.mxd

MPCA - Former EPS Printing (Source Area)
6518 Walker Street
St. Louis Park, Minnesota
Project No.: 60309548 Date: 2/18/2014

Groundwater Analytical Results
Water Table

AECOM

Figure: 5.B.1



SB-2-W (50-54) 12/13/13	
1,1-DCE	<1.0
Benz.	<1.0
PCE	**4.8**
TCE	**5.8**
VC	<0.40
C-1,2-DCE	<1.0
T-1,2-DCE	<1.0

SB-3-W (45-49) 12/13/13	
1,1-DCE	<1.0
Benz.	<1.0
PCE	**8.1**
TCE	**4.1**
VC	<0.40
C-1,2-DCE	**2.1**
T-1,2-DCE	<1.0

SB-4-W (50-54) 12/11/13	
1,1-DCE	<1.0
Benz.	<1.0
PCE	**5.6**
TCE	**8.6**
VC	<0.40
C-1,2-DCE	<1.0
T-1,2-DCE	<1.0

SB-1-W (50-54) 12/12/13	
1,1-DCE	<1.0
Benz.	<1.0
PCE	**30.4**
TCE	**11.8**
VC	<0.40
C-1,2-DCE	<1.0
T-1,2-DCE	<1.0

SB-5-W (46-50) 12/11/13	
1,1-DCE	<1.0
Benz.	<1.0
PCE	**2400**
TCE	**8.1**
VC	<0.40
C-1,2-DCE	**4.0**
T-1,2-DCE	**2.2**

SB-6-W (50-54) 12/12/13	
1,1-DCE	<20.0
Benz.	<20.0
PCE	**2030**
TCE	**10.1**
VC	<8.0
C-1,2-DCE	<20.0
T-1,2-DCE	<20.0

Notes
Benz. = benzene
DCE = dichloroethene
PCE = Tetrachloroethene
TCE = Trichloroethene
C-1,2-DCE = cis-1,2-Dichloroethene
T-1,2-DCE = trans-1,2-Dichloroethene
< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit
(yellow) = Concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit
HBV = Health Based Value
RAA = Risk Assessment Advice

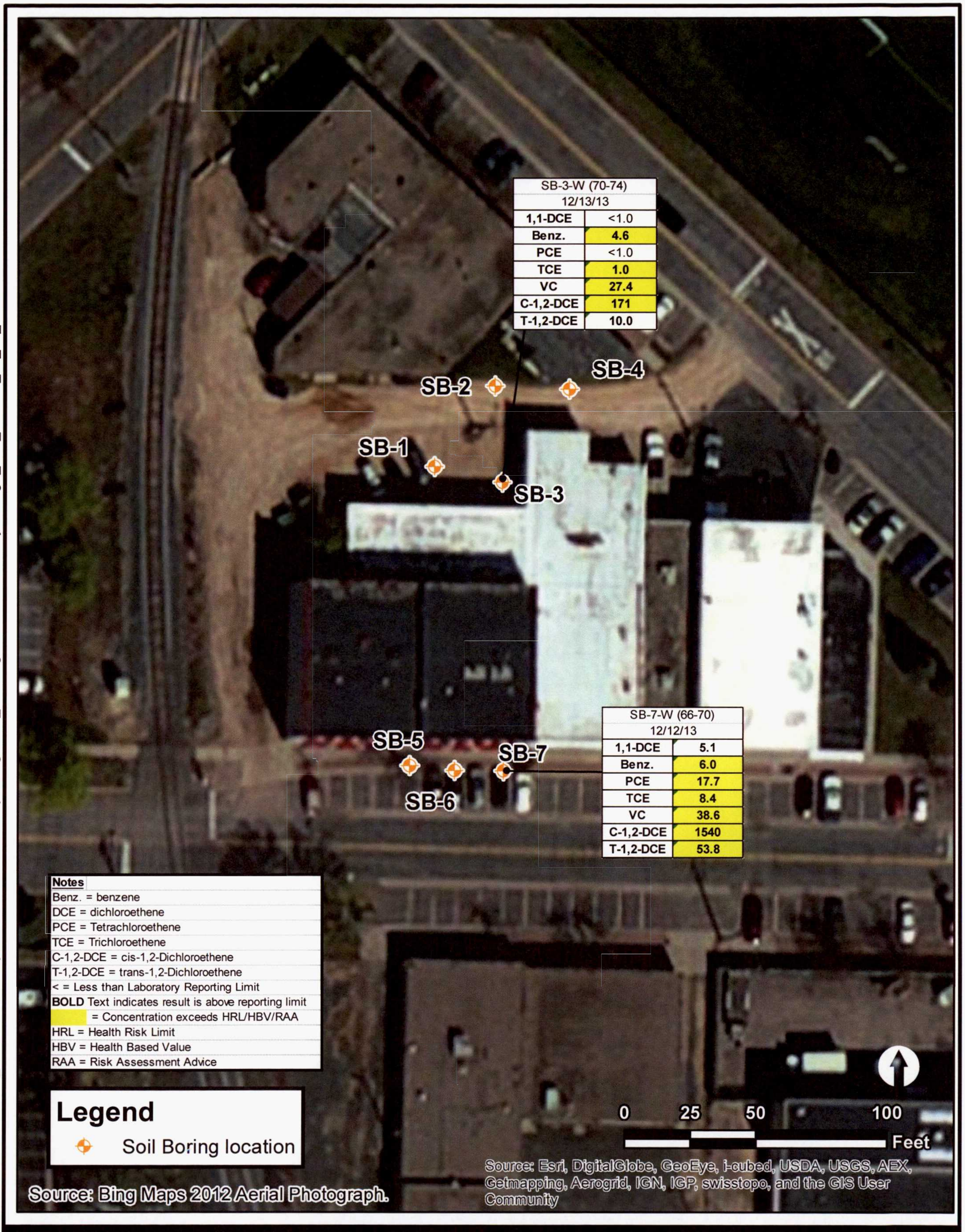
Last saved by: DIEDRICHB(2014-02-18)
Filename: J:\MPCA\FY14_MPCA\FY14 Projects\60309548 Audio by Design\900_WorkingDocs-CAD\GIS\Layout\140218\Fig6_GW_Results_45_55_140218.mxd

MPCA - Former EPS Printing (Source Area)
6518 Walker Street
St. Louis Park, Minnesota
Project No.: 60309548 Date: 2/18/2014

Groundwater Analytical Results
45-55' Below Ground Surface

AECOM

Figure: 5.B.2



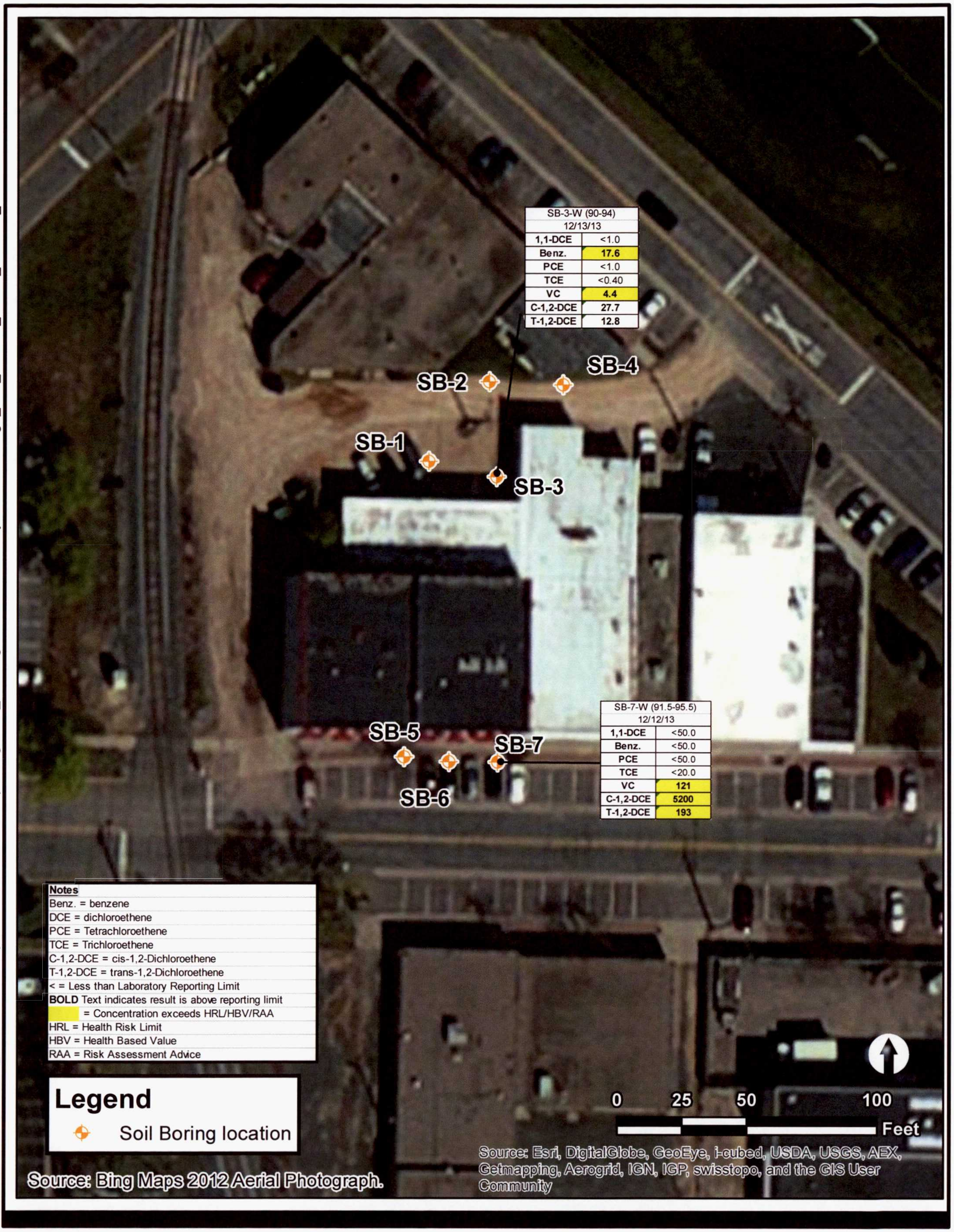
Last saved by: DIEDRICHB(2014-02-18)
Filename: J:\MPCA\FY14_MPCA\FY14 Projects\60309548 Audio by Design\900_WorkingDocs-CAD\GIS\Layout\Fig7_GW_Results_65_75_140218.mxd

MPCA - Former EPS Printing (Source Area)
6518 Walker Street
St. Louis Park, Minnesota
Project No.: 60309548 Date: 2/18/2014

Groundwater Analytical Results
65-75' Below Ground Surface

AECOM

Figure: 5.B.3



Last saved by: DIEDRICHB(2014-02-18)
Filename: J:\MPCA\FY14_MPCA\FY14 Projects\60309548 Audio by Design\900_WorkingDocs-CAD\GIS\Layout\140218\Fig8_GW_Results_Above_Bedrock_140218.mxd

MPCA - Former EPS Printing (Source Area)
6518 Walker Street
St. Louis Park, Minnesota
Project No.: 60309548 Date: 2/18/2014

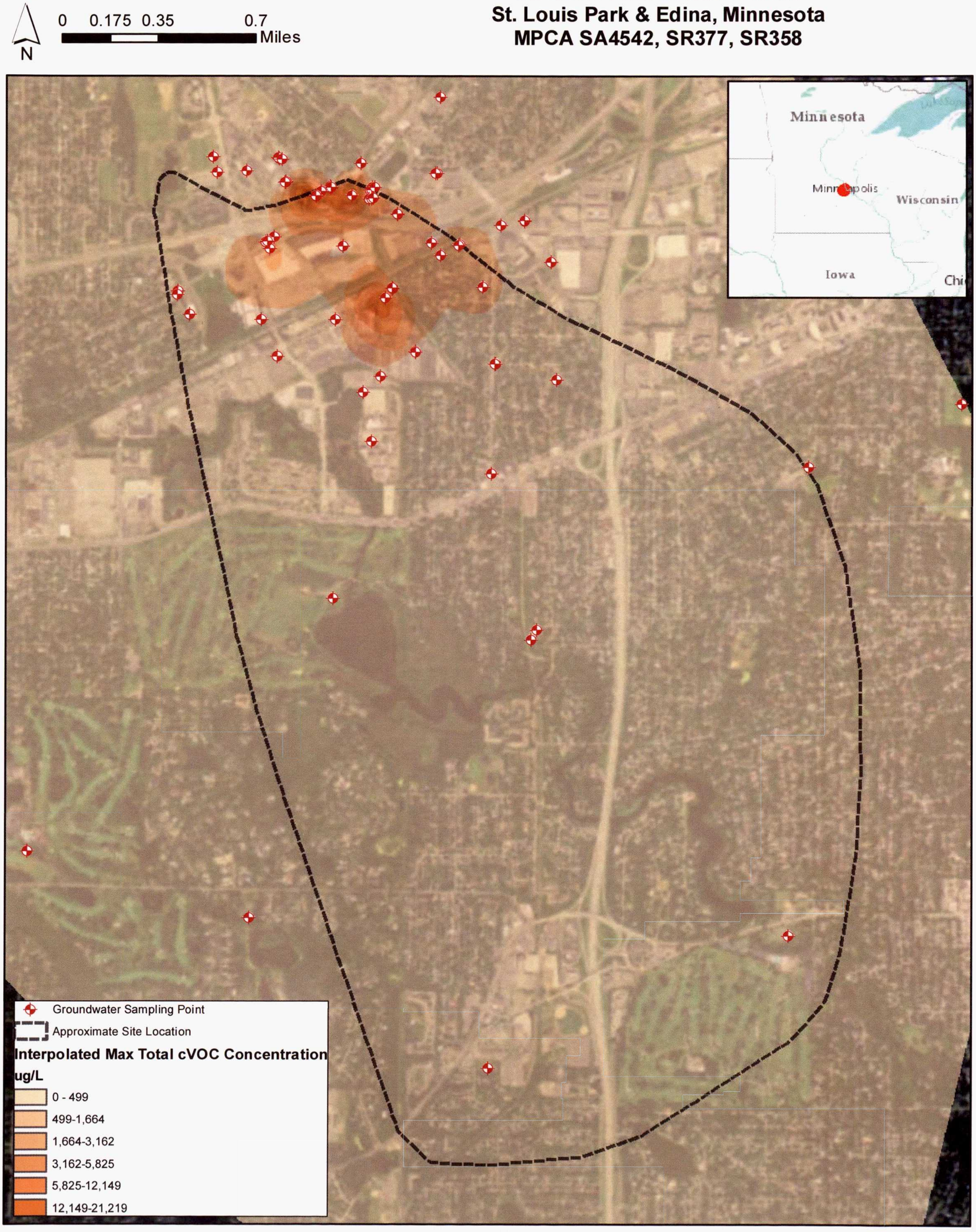
Groundwater Analytical Results
Above Bedrock

AECOM

Figure: 5.B.4

Minnesota Pollution Control Agency

Figure 5.C
Region-Wide Interpolated Max Total Chlorinated VOC Concentrations
St. Louis Park Solvent Plume
St. Louis Park & Edina, Minnesota
MPCA SA4542, SR377, SR358



Filename: P:\Water_Env\MPCA\FY15_MPCA\FY15 Projects\60335087 St. Louis Park Investigation FY15\900_WorkingDocs-CAD\Figures GIS\SRC\Figure 3 - GW Flow.mxd
Last saved by: KLAUSB(2015-04-14)

St. Louis Park Groundwater Elevations
St. Louis Park, MN 55426
St. Louis Park, MN 55426
Project No.: 60335087 Date: 4/30/2015

Drift Aquifer
Groundwater Contours

AECOM
Figure 6

Minnesota Pollution Control Agency

Figure 7
Contaminated Public Supply Wells
St. Louis Park Solvent Plume
St. Louis Park & Edina, Minnesota
MPCA SA4542, SR377, SR358

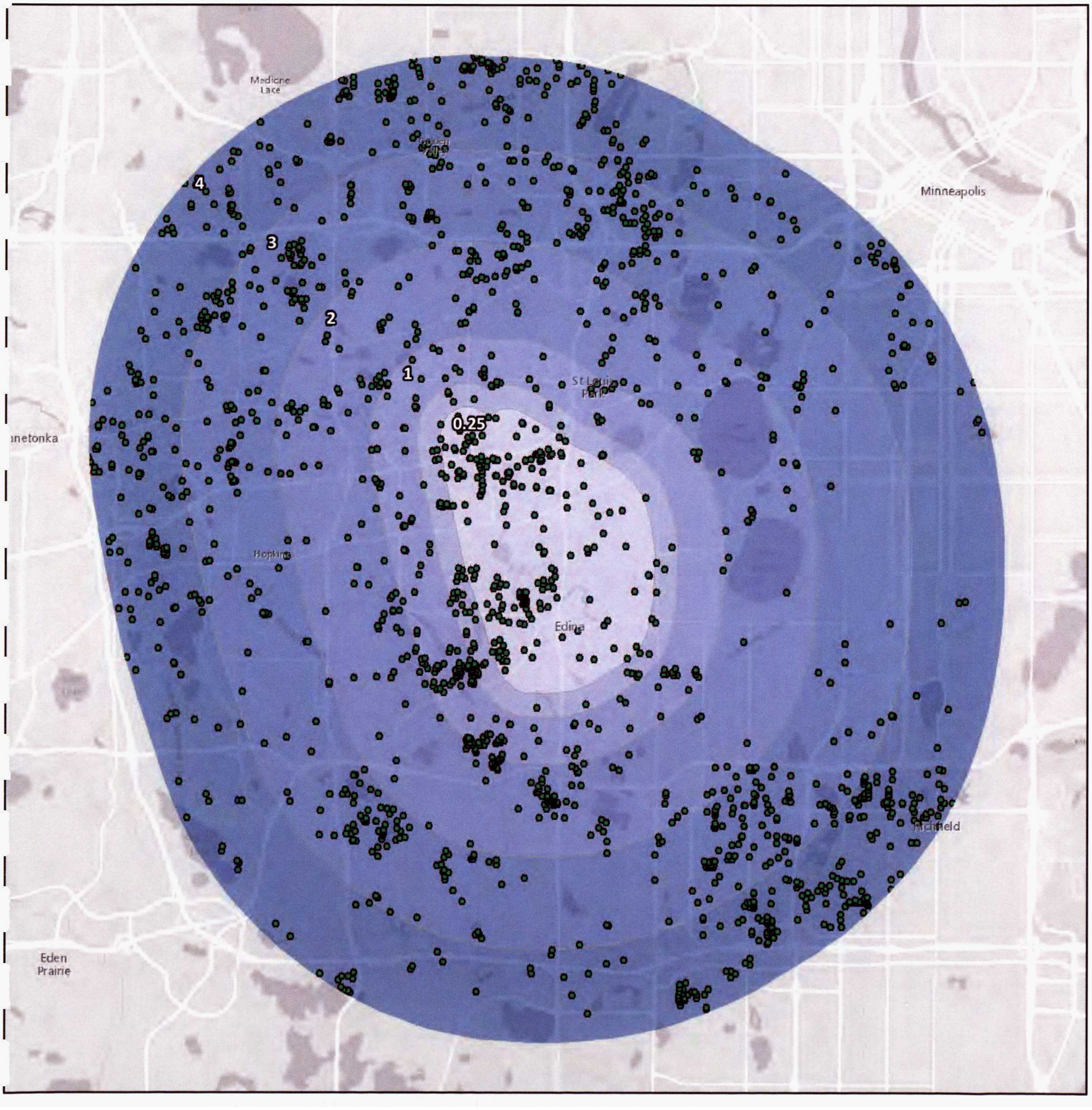
N

0 0.25 0.5 Miles

Minnesota Pollution Control Agency

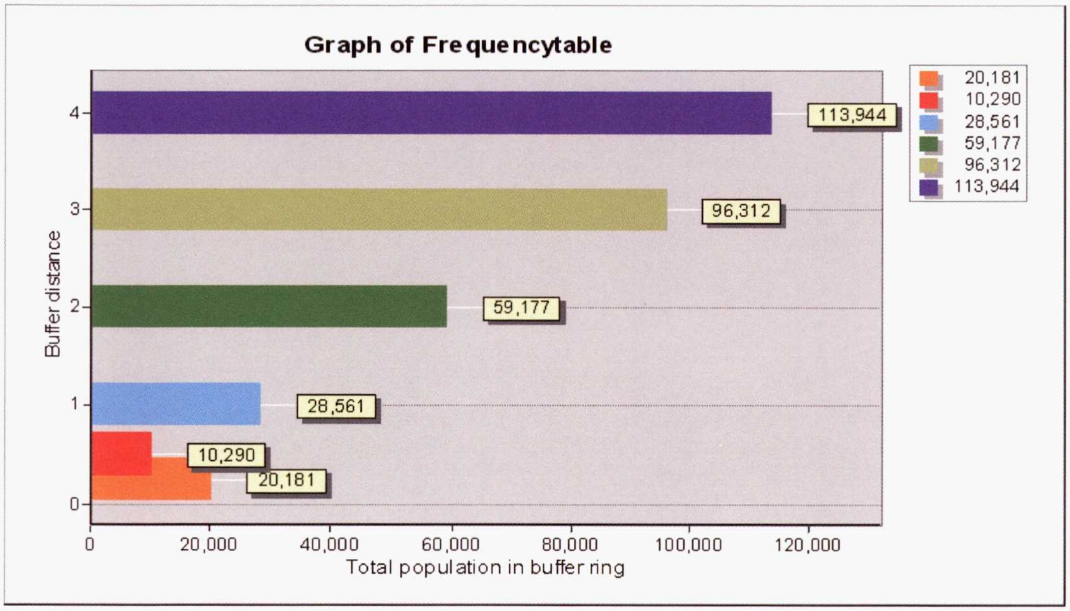
Figure 8
Water Supply Wells in Site Vicinity
St. Louis Park Solvent Plume
St. Louis Park & Edina, Minnesota
MPCA SA4542, SR377, SR358

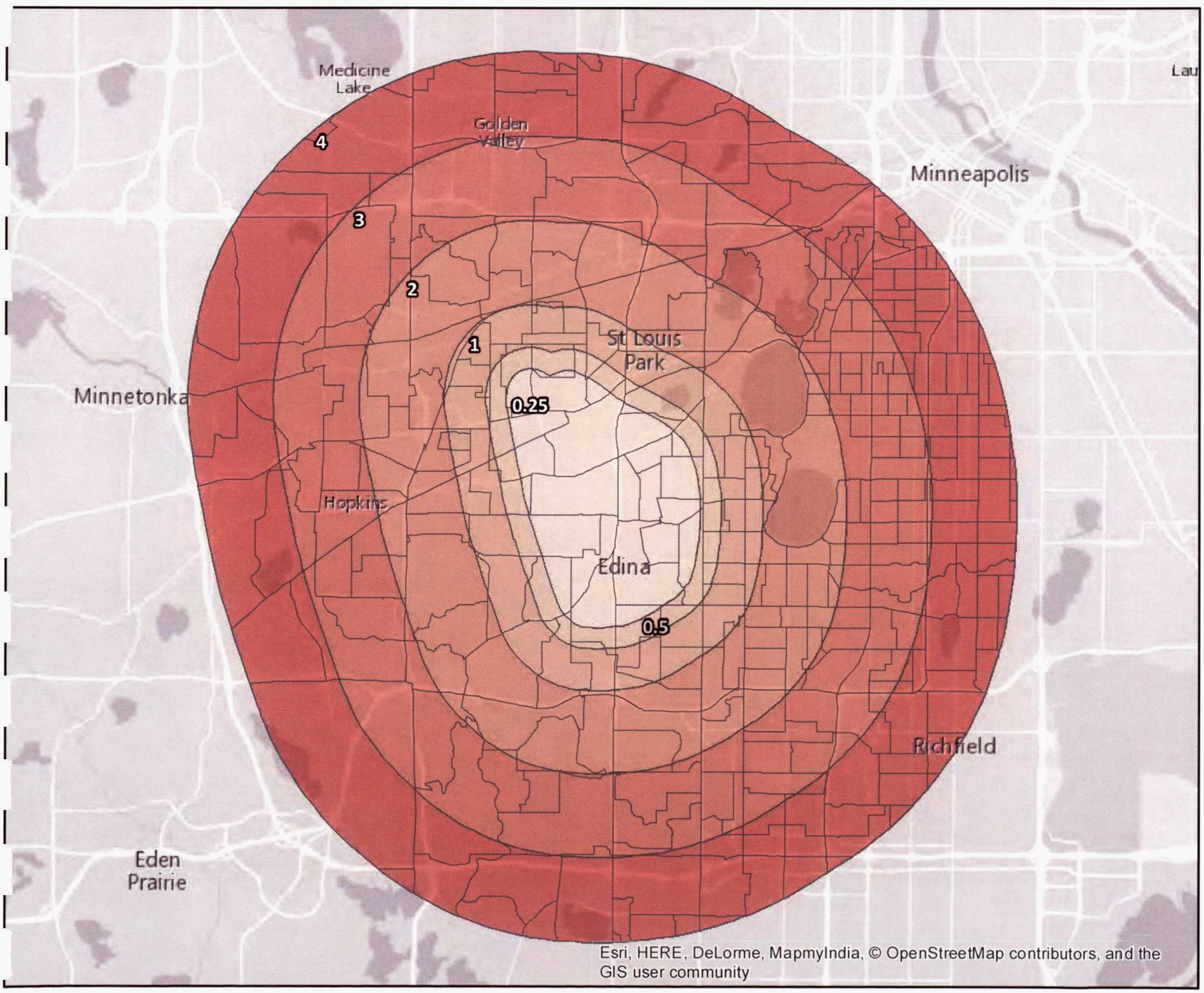
● Wells within the buffer area - see table for additional information



Minnesota Pollution Control Agency

Figure 9
Population Data within Site Vicinity
St. Louis Park Solvent Plume
St. Louis Park & Edina, Minnesota
MPCA SA4542, SR377, SR358





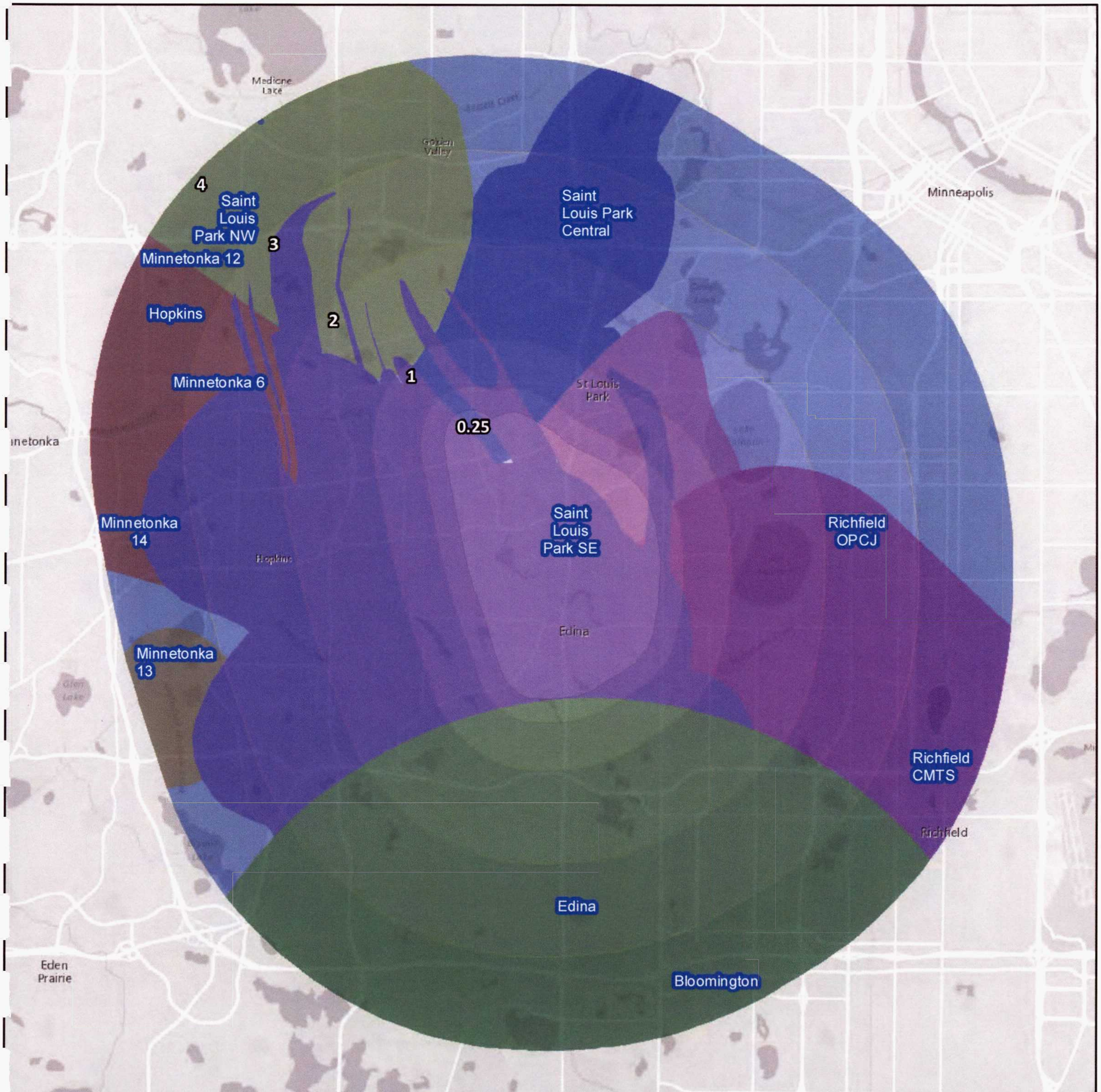
Minnesota Pollution Control Agency

Figure 10
Water Supply Wellhead Protection Areas

St. Louis Park Solvent Plume
St. Louis Park & Edina, Minnesota
MPCA SA4542, SR377, SR358

WHP NAME

Bloomington
Edina
Hopkins
Minnetonka 12
Minnetonka 13
Minnetonka 14
Minnetonka 6
Richfield CFIG
Richfield CMTS
Richfield OPCJ
Saint Louis Park Central
Saint Louis Park NW
Saint Louis Park SE
Sun Valley Mobile Home Park



TABLES

St. Louis Park VOC Sources Investigation
AECOM Project Number: 04660-024

Table 1. Soil Samples VOC Analytical Results - (only detected VOCs included)

Chemical	CAS Number	Tier 1 SLV	Tier 1 SRV (Residential)	B1	B2	B3	B1	B2	B3	B1	B1 - DUP	B2	B3	B1	B2
				Tall Sales, 6714 Walker St.	Tall Sales, 6714 Walker St.	Tall Sales, 6714 Walker St.	Eclipse Electric, 6512 Walker St.	Eclipse Electric, 6512 Walker St.	Eclipse Electric, 6512 Walker St.	MiniValco, 3340 Gorham Ave.	MiniValco, 3340 Gorham Ave.	MiniValco, 3340 Gorham Ave.	MiniValco, 3340 Gorham Ave.	Lighting Plastics, 3326 Gorham Ave.	Lighting Plastics, 3326 Gorham Ave.
Lab Sample ID:				1090353003	1090353002	1090353001	1090531001	1090431001	1090431002	1090531002	1090531003	1090611001	1090611002	1090640001	1090640002
Sample Depth (ft):				28	21	25	32	3	27	29.5	29.5	26	21	16	19
Column No.: 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Percent Moisture				2.2	3.7	2.3	2.7	14.4	2.9	4.6	4.5	3.6	2.0	1.7	3.6
Concentrations		[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]
Acetone	67-64-1	7.00E+02	3.40E+05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	127-18-4	7.00E+01	7.20E+04	ND	ND	ND	ND	**3.52E+04**	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	NA	8.00E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	95-47-6	NA	4.50E+04	ND	ND	ND	ND	**4.08E+02**	ND	ND	ND	ND	ND	ND	ND

Notes:

ND - Below Laboratory Report Limit
Tier 1 SLV - Tier 1 Soil Leaching Values, June 27, 2005 - Risk Based Guidance for Evaluating the Soil Leaching Pathway, MPCA Website: http://www.pca.state.mn.us/cleanup/riskbasedoc.html
Tier 1 SRV - Tier 1 Soil Reference Values, December 2008 - Risk-Based Guidance for the Soil - Human Health Pathway, MPCA Website: http://www.pca.state.mn.us/publications/risk-tier1srv.xls
- Detected concentration exceeds Tier 1 SLV
- Detected concentration exceeds Tier 1 SRV
NA - No Value Available

St. Louis Park VOC Sources Investigation
AECOM Project Number: 04660-024

Table 1. Soil Samples VOC Analytical Results - (only detected VOCs included)

Chemical	CAS Number	Tier 1 SLV	Tier 1 SRV (Residential)	B2-DUP	B-3	B-1	B-2	B-3	B-1	B-2	B-3
				Lighting Plastics, 3326 Gorham Ave.	Lighting Plastics, 3326 Gorham Ave.	Family Digest, 7008 Walker St.	Family Digest, 7008 Walker St.	Family Digest, 7008 Walker St.	Pampered Pooch, 7020 Walker St.	Pampered Pooch, 7020 Walker St.	Pampered Pooch, 7020 Walker St.
Lab Sample ID:				1090640003	1090640004	1092050001	1092050002	1092050003	1092172001	1092172002	1092232001
Sample Depth (ft):				19	10	26	26	26	27	22	27
Column No.: 1	2	3	4	17	18	26	27	28	19	20	21
Percent Moisture				3.6	3.2	4.7	7.1	2.5	7.0	3.0	2.7
Concentrations		[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]
Acetone	67-64-1	7.00E+02	3.40E+05	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	127-18-4	7.00E+01	7.20E+04	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	NA	8.00E+03	ND	**5.2E+00**	ND	ND	ND	ND	ND	ND
o-Xylene	95-47-6	NA	4.50E+04	ND	ND	ND	ND	ND	ND	ND	ND

Chemical	B-1	B-2	B-2 DUP	B-3	B-1	B-2
	Kaufenberg, 6225 37th St. W.	Kaufenberg , 6225 37th St. W.	Kaufenberg, 6225 37th St. W.	Kaufenberg, 6225 37th St. W.	Ace Supply, 6425 Oxford St.	Ace Supply, 6425 Oxford St.
Lab Sample ID:	1092232002	109237001	109237002	109237003	1094258001	109237000
Sample Depth (ft):	50	30	30	30	32	17.5
Column No.:	22	23	24	25		
Percent Moisture	8.0	5.2	4.4	3.0	11.2	1.3
Concentrations	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]
Acetone	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND

Notes:

ND - Below Laboratory Report Limit
Tier 1 SLV - Tier 1 Soil Leaching Values, June 27, 2005 - Risk Based Guidance for Eva
Tier 1 SRV - Tier 1 Soil Reference Values, December 2008 - Risk-Based Guidance for tl
- Detected concentration exceeds Tier 1 SLV
- Detected concentration exceeds Tier 1 SRV
NA - No Value Available

St. Louis Park VOC Sources Investigation
AECOM Project Number: 04660-024

Table 1. Soil Samples VOC Analytical Results - (only detected VOCs included)

Chemical	CAS Number	Tier 1 SLV	Tier 1 SRV (Residential)		B-3	B-1	B-2	B-3	B-3 DUP	B-1	B-2	B-3	B-1	B-2	B-1	B-2	B-3
					Ace Supply, 6425 Oxford St.	Care Cleaners, 6528 Lake St. W.	Care Cleaners, 6528 Lake St. W.	Care Cleaners, 6528 Lake St. W.	Care Cleaners, 6528 Lake St. W.	Techna Graphics, 6500 Lake St. W.	Techna Graphics, 6500 Lake St. W.	Techna Graphics, 6500 Lake St. W.	Bryant Graphics, 6504 Walker St.	Bryant Graphics, 6504 Walker St.	Prof. Instruments, 6824 Lake St. W.	Prof. Instruments, 6824 Lake St. W.	Prof. Instruments, 6824 Lake St. W.
Lab Sample ID:				4	1094258002	1092372001	1092372002	1094366001	1094366002	1094366003	1094467001	1094467002	1094467003	1094582001	1094582002	1094695002	1094695001
Sample Depth (ft):					32	36	37	40	40	42	32	40	40	40	42	44	44
Column No.: 1	2	3	4			29	30	30	30	42	42	42					
Percent Moisture					10.6	2.2	2.4	14.3	13.1	19.3	1.1	13.7	1.7	9.6	5.5	3.7	12.5
Concentrations		[ug/kg]	[ug/kg]		[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]	[ug/kg]
Acetone	67-64-1	7.00E+02	3.40E+05		ND	ND	ND	ND	ND	ND	ND	ND			**3.14E+01**	ND	ND
Tetrachloroethylene (PCE)	127-18-4	7.00E+01	7.20E+04		ND	ND	ND	ND	ND	ND	ND	ND	**3.70E+00**	ND	**1.09E+01**	**5.90E+00**	ND
1,2,4-Trimethylbenzene	95-63-6	NA	8.00E+03		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	95-47-6	NA	4.50E+04		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

ND - Below Laboratory Report Limit
Tier 1 SLV - Tier 1 Soil Leaching Values, June 27, 2005 - Risk Based Guidance for Eva
Tier 1 SRV - Tier 1 Soil Reference Values, December 2008 - Risk-Based Guidance for tl
- Detected concentration exceeds Tier 1 SLV
- Detected concentration exceeds Tier 1 SRV
NA - No Value Available

Table 1
Soil Analytical Results

			Benzene	PCE	cis-1,2-Dichloroethene
		SLV	17.2	41.5	208.0
		Residential SRV	6,000	72,000	8,000
		Industrial SRV	10,000	131,000	22,000
	Sample Location	Date			
Figure 3A-Former Super Radiator Coils	B6-S-65	1/20/2015	<23.1	<57.9	<57.9
	B6-S-65-Y	1/20/2015	<24.2	<60.5	<60.5
	B7-S-70	1/19/2015	<22.4	<55.9	<55.9
	B8-S-53	1/19/2015	<23.8	**240**	<59.5
	B8-S-70	1/19/2015	<21.5	**164**	<53.7
	B9-S-48	1/16/2015	<24.3	**234**	<60.8
	B9-S-54	1/16/2015	<46.7	**1940**	<117
	B9-S-70	1/16/2015	<23.3	**58.6**	**113**
	B10-S-48	1/14/2015	<23.6	<58.9	<58.9
	B10-S-60	1/14/2015	<22.4	**148**	<56.0
	B11-S-54	1/12/2015	<24.3	**618**	<60.8
	B11-S-70	1/13/2015	<20.9	<52.1	<52.1
	B12-S-44	1/15/2015	<22.2	**90.1**	<55.5
	B12-S-68	1/15/2015	<22.5	**188**	<56.1
	B13-S-15	1/20/2015	<20.6	<51.4	<51.4
	B13-S-40	1/21/2015	<22.5	<56.3	<56.3
	B13-S-70	1/21/2015	<23.2	<58.0	<58.0
	B14-S-26	1/21/2015	<20.0	<50.0	<50.0
	B14-S-46	1/21/2015	<24.2	<60.5	<60.5
	B14-S-56	1/21/2015	<22.7	<56.9	<56.9
	B14-S-70	1/21/2015	<22.2	<55.5	<55.5
	B15-S-33	1/28/2015	<20.2	<50.6	<50.6
	B15-S-44	1/28/2015	<23.5	<58.8	<58.8
	B15-S-44-Y	1/28/2015	<23.4	<58.4	<58.4
	B15-S-70	1/28/2015	<24.1	<60.1	<60.1
	B16-S-33	1/28/2015	<21.2	<53.1	<53.1
	B16-S-40	1/28/2015	<24.0	<60.0	<60.0
	B16-S-70	1/28/2015	<22.8	<57.0	<57.0
	B16-S-70-Y	1/28/2015	<21.7	<54.4	**60.5**
Figure 3B-Former National Lead	B17-S-32	1/22/2015	<22.6	<56.6	<56.6
	B17-S-58	1/23/2015	<25.1	<62.7	<62.7
	B17-S-67	1/23/2015	**24.2**	<58.5	<58.5
	B18-S-23	1/26/2015	<23.4	<58.5	<58.5
	B18-S-42	1/26/2015	<23.5	<58.7	<58.7
	B18-S-65	1/26/2015	<23.1	<57.8	<57.8
	B19-S-42	1/27/2015	<23.1	<57.8	<57.8
	B19-S-65	1/27/2015	<21.7	<54.3	<54.3
	B19-S-73	1/27/2015	<21.6	<54.0	<54.0
	Trip Blank	1/19/2015	<20.0	<50.0	<50.0

< = Less than Reporting Limit
Bold = Above Reporting Limit
YELLOW BACKGROUND = concentration exceeds SLV/SRV
SLV = Residential Soil Leaching Value established by MPCA
SRV = Soil Reference Value established by MPCA
concentrations are reported in micrograms per kilogram (ug/kg)
Only compounds detected are shown
-S designates a soil sample
-Y designates a duplicate sample
-N designates a non-duplicate sample

Table 1
Soil Analytical Results
St. Louis Park Solvent Plume - Former EPS Printing - St. Louis Park, Minnesota
Concentrations are Reported in µg/kg
Partial Listing - Only Compounds Detected are Listed

Sample Identification (Depth in ft.)			SB-1-S (4')	SB-1-S (32')	SB-1-S (45')	SB-2-S (4')	SB-2-S (32')	SB-2-S (44')	SB-3-S (4')	SB-3-S (30')	SB-3-S (47')	SB-4-S (4')	SB-4-S (40')	SB-5-S (4')	SB-5-S (40')	SB-6-S (4')	SB-6-S (40')	SB-6-S (45')	SB-7-S (4')	SB-7-S (40')	MeOH Blank
Date			**12/9/2013**	**12/9/2013**	**12/9/2013**	**12/9/2013**	**12/9/2013**	**12/9/2013**	**12/10/2013**	**12/10/2013**	**12/10/2013**	**12/10/2013**	**12/10/2013**	**12/11/2013**	**12/11/2013**	**12/11/2013**	**12/11/2013**	**12/11/2013**	**12/11/2013**	**12/11/2013**	**9/9/2013**
Compound	**Tier 1 SLV**	**Tier 1 SRV**																			
Tetrachloroethene	41.5*	72,000	<56.3	<57.1	<56.7	<54.5	<49.6	<51.6	**3,900**	<56.0	<57.8	**301**	<50.1	<62.2	**107**	<61.3	**119**	**2,900**	<52.9	<57.7	<50.0

Notes
< = Less than Laboratory Reporting Limit
Tier 1 SLV = Residential Soil Leaching Value
Tier 1 SRV = Residential Soil Reference Value
BOLD = Compound Detected above Reporting Limit
= concentration exceeds the Tier 1 SLV
* = Laboratory reporting limit is greater than established Tier 1 SLV

St. Louis Park Investigation
AECOM Project Number 60317420

Table 1
Soil Analytical Results
Borings

	Super Radiator Coils Tube Fab Division									Super Radiator Coils								Sidal Realty							
Chemical	B1-S-N-36	B1-S-N-55	B1-S-N-80	B2-S-N-38	B2-S-N-39	B2-S-N-45	B3-S-N-4	B3-S-N-36	B3-S-N-50	B4-S-N-4*	B4-S-Y-4**	B4-S-N-48	B5-S-N-45	B5-S-N-56	B5-S-N-80	B6-S-N-4	B6-S-N-48	B7-S-N-4	B7-S-N-34	B7-S-N-75	B7-S-Y-75	Trip Blank	SLV	Residential SRV	Industrial SRV
Napthalene	< 225	< 223	**363**	< 239	< 239	**468**	< 210	< 238	**797**	< 230	< 249	< 223	< 239	< 254	< 224	< 211	< 229	< 236	< 238	< 255	< 226	< 200	4,470	10,000	28,000
Tetrachloroethylene	< 56.1	< 55.7	< 53.3	< 59.8	< 59.7	< 55.8	< 52.5	< 59.5	< 61.2	< 57.6	< 62.2	**57.5**	**79.5**	**9080**	< 55.9	< 52.6	< 57.3	< 59.0	< 59.4	< 63.7	< 56.6	< 50.0	41.5	72,000	131,000
cis-1,2- Dichloroethene	< 56.1	< 55.7	< 53.3	< 59.8	< 59.7	< 55.8	< 52.5	< 59.5	< 61.2	< 57.6	< 62.2	< 55.8	< 59.9	< 63.4	**126**	< 52.6	< 57.3	< 59.0	< 59.4	**243**	< 56.6	< 50.0	208	8,000	22,000
trans-1,2- Dichloroethene	< 56.1	< 55.7	< 53.3	< 59.8	< 59.7	< 55.8	< 52.5	< 59.5	< 61.2	< 57.6	< 62.2	< 55.8	< 59.9	< 63.4	< 55.9	< 52.6	< 57.3	< 59.0	< 59.4	**113**	< 56.6	< 50.0	416	11,000	33,000

< = Less than Reporting Limit
Bold = Above Reporting Limit
Exceedance of SLV/Residential SRV/Industrial SRV
SLV = Residential Soil Leaching Value established by MPCA
SRV = Soil Reference Value established by MPCA
All compounds described in µg/kg
* B4-S-N-4 was incorrectly labeled as B4-5-N-4 on Pace Analytical Report
** B4-S-Y-4 was incorrectly labeled as B4-5-S-Y-4 on Pace Analytical Report
Only compounds detected are shown

Table 1
Soil Analytical Results
St. Louis Park Solvent Plume - Former Flame Metals - St. Louis Park, Minnesota
Partial Listing - Only Compounds Detected are Listed

Sample Identification (Depth in ft.)			SB-1-S (4')	SB-1-S (9')	SB-1-S (58')	SB-2-S (4')	SB-2-S (11')	SB-3-S (4')	SB-3-S (6')	SB-3-S (11')	SB-4-S (4')	SB-4-S (9')	SB-5-S (4')	SB-5-S (10')	SB-5-S (28')	SB-6-S (3')	SB-6-S (11')	MeOH Blank
Date			1/29/2014	1/29/2014	1/29/2014	2/3/2014	2/3/2014	1/31/2014	1/31/2014	1/31/2014	1/30/2014	1/30/2014	1/30/2014	1/30/2014	1/30/2014	1/31/2014	1/31/2014	1/29/2014
Compound	**Tier 1 SLV**	**Tier 1 SRV**																
None Detected	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes
Tier 1 SLV = Residential Soil Leaching Value
Tier 1 SRV = Residential Soil Reference Value
NA = not applicable
ND = not detected

St. Louis Park VOC Sources Investigation
AECOM Project Number: 04660024

Table 2. Groundwater Samples VOC Analytical Results
(only detected VOCs included)

Chemical	CAS Number	GW_{ISV}	Drinking Water Standard	W1, Tall Sales Co., 6714 Walker St.	W1 - Eclipse Electric, 6512 Walker St.	W1 DUP - Eclipse Electric, 6512 Walker St.	W2 - Eclipse Electric, 6512 Walker St.	W3 - Eclipse Electric, 6512 Walker St.	W1 - MinValco Inc., 3340 Gorham Ave.	W2 - MinValco Inc., 3340 Gorham Ave.	W2 - Lighting Plastics of MN, 3326 Gorham	W1 The Family Digest 7008 Walker St.	W2 The Family Digest 7008 Walker St.	W3 The Family Digest 7008 Walker St.	W1 Pampered Pooch, 7020 Walker St.	W1 DUP Pampered Pooch, 7020 Walker St.
		[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]
Lab Sample ID:				200904537	200904540	200904541	200904538	200904539	200904542	200904543	200904544	200906767	200906768	200906769	200906770	200906771
Acetone	67-64-1	5.00E+05	7.00E+02 HRL								2.90E+01					
Benzene	71-43-2	4.00E+01	2.00E+00 HRL	3.0E-01			5.00E-01	1.00E-01 J	4.70E+01 RC	4.80E+01 RC	7.60E+01 RC		7.0E-01		1.0E-01 J	1.0E-01 J
Bromodichloromethane	75-27-4	2.00E+01	6.00E+00 HRL													
Bromomethane	74-83-9	3.00E+01	1.00E+01 HRL													
tert-Butylbenzene	98-06-6								7.6E+00							
Chloroform	67-66-3	1.00E+03	3.00E+01 HRL		8.0E-02 J		5.0E-01	1.0E-01								
Chloromethane	74-87-3	2.00E+01					1.8E+00		1.1E+00		6.00E-01 J					
1,1-Dichloroethane	75-34-3	4.00E+03	7.00E+01 HRL	1.6E-01 J									2.0E-01 J			
1,2-Dichloroethane	107-06-2	2.00E+01	4.00E+00 HRL													
1,1-Dichloroethene	75-35-4	3.00E+02	2.00E+02 HRL	4.0E-01 J												
cis-1,2-Dichloroethylene	156-59-2	5.00E+02	5.00E+01 HRL	1.6E+01	4.0E-01	4.0E-01	1.0E-01 J		2.0E+00	1.0E-01 J			7.6E+01 RC	9.0E-01	2.3E+00	2.1E+00
trans-1,2-Dichloroethylene	156-60-5	3.00E+02	1.00E+02 HRL	1.3E+01	2.0E-01	2.0E-01			3.9E+00				2.0E+02 RC	1.4E+00	2.0E-01	2.0E-01
Dichlorofluoromethane	75-43-4	7.00E+01														
Ethylbenzene	100-41-4	7.00E+03	7.00E+02 HRL				4.6E-01 J		53 RC	5.9E+01 RC	1.70E+01					
Isopropylbenzene	98-82-8		3.00E+02 HRL*						1.1E+01	1.2E+01	3.00E+00					
p-Isopropyltoluene	99-87-6									8.0E-01						
Methylene chloride (dichloromethane)	75-09-2	4.00E+02	5.00E+00 HRL													
Naphthalene	91-20-3	1.00E+03	3.00E+02 HRL						1.80E+03 RC	1.30E+03 RC	3.50E+02 RC					
n-Propylbenzene	103-65-1								3.2E+00	2.7E+00	5.00E-01					
Styrene	100-42-5	2.00E+04	1.00E+02 MCL						1.6E+00							
Tetrachloroethylene (PCE)	127-18-4	6.00E+01	5.00E+00 HRL	2.0E-01	1.8E+03 RC	1.8E+03 RC	3.0E+00	1.1E+01	1.5E+00	6.0E-01	5.00E-01					
Toluene	108-88-3	4.00E+04	1.00E+03 HRL	2.0E-01 J	0.1 J	0.2 J	7.0E-01	3.0E-01 J	3.5E+00	3.6E+00	1.20E+00	3.0E-01 J	4.0E-01 J	4.0E-01 J	9.0E-01	5.0E-01
1,1,1-Trichloroethane	71-55-6	3.00E+03	9.00E+03 HRL	1.0E-01 J	2.0E-01	2.0E-01						2.0E-01			2.0E-01	2.0E-01
1,1,2-Trichloroethane	79-00-5	4.00E+01	3.00E+00 HRL													
Trichloroethylene (TCE)	79-01-6	2.00E+01	5.00E+00 HRL	9.6E+00	4.4E+00	4.0E+00	2.9E+00	2.7E+00	6.9E+00	9.9E-02 J		5.4E+00	1.0E+02 RC	2.6E+01	3.9E+00	4.3E+00
1,2,4-Trimethylbenzene	95-63-6	7.00E+01							3.9E+01 RC	3.6E+01 RC	4.80E+00					
1,3,5-Trimethylbenzene	108-67-8	7.00E+01	1.00E+02 HRL						1.4E+01	8.5E+00	1.20E+00					
Vinyl Chloride	75-01-4	1.00E+00	2.00E-01 HRL	2.3E+00									7.0E-01		2.0E-01	
o-Xylene	95-47-6	1.00E+03	1.00E+04 HRL						3.4E+01 RC	3.8E+01 RC	1.00E+01					
p&m-Xylene	106-42-3 108-38-3	8.00E+02	1.00E+04 HRL						3.7E+01 RC	2.9E+01 RC	8.90E+00					

Notes:

J - The analyte was positively identified. The result is below the report level and is estimated

GW_{ISV} - Groundwater Intrusion Screening Values - Risk Based Guidance for the Vapor Intrusion Pathway. MPCA, Superfund RCRA and Voluntary Cleanup Section September 2008 - http://www.pca.state.mn.us/publications/c-s4-06.pdf

HRL - Minnesota Health Risk Limits for Groundwater: http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html

HRL* - Due to newly accumulated data MDH no longer recommends that value

MCL - Maximum Contaminant Level http://www.epa.gov/safewater/contaminants/index.html#mcls

ND - Below Laboratory Report Level

RC - Report level was changed due to sample dilution

- Measured groundwater concentration exceeds GW_{ISV}

- Measured groundwater concentration exceeds HRL/MCL

Table 2. Groundwater Samples VOC Analytical Results
(only detected VOCs included)

Chemical	CAS Number	GW_{ISV}	Drinking Water Standard	W2 Pampered Pooch, 7020 Walker St.	W3 Pampered Pooch, 7020 Walker St.	W1 Kaufenberg, 6225 37th St. W.	W1 DUP Kaufenberg, 6225 37th St. W.	W1 Ace Supply, 6425 Oxford St.	W2 Ace Supply, 6425 Oxford St.	W3 Ace Supply, 6425 Oxford St.	W1 Care Cleaners, 6528 Lake St. W.	W2 Care Cleaners, 6528 Lake St. W.	W3 Care Cleaners, 6528 Lake St. W.	W1 Techna Graphics, 6500 Lake St. W.	W2 Techna Graphics, 6500 Lake St. W.	W3 Techna Graphics, 6500 Lake St. W.
		[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]
Lab Sample ID:				200906772	200906773	200911599	200911600	200911587	200911588	200911593	200906774	200906775	200911589	200911590	200911591	200911592
Acetone	67-64-1	5.00E+05	7.00E+02 HRL													
Benzene	71-43-2	4.00E+01	2.00E+00 HRL			9.2E+00	8.4E+00		3.0E-01						1.0E-01 J	1.0E-01 J
Bromodichloromethane	75-27-4	2.00E+01	6.00E+00 HRL													
Bromomethane	74-83-9	3.00E+01	1.00E+01 HRL													
tert-Butylbenzene	98-06-6															
Chloroform	67-66-3	1.00E+03	3.00E+01 HRL													
Chloromethane	74-87-3	2.00E+01														
1,1-Dichloroethane	75-34-3	4.00E+03	7.00E+01 HRL						1.6E-01 J							
1,2-Dichloroethane	107-06-2	2.00E+01	4.00E+00 HRL						9.0E-01	3.0E-01						
1,1-Dichloroethene	75-35-4	3.00E+02	2.00E+02 HRL			1.2E+01	1.0E+01									
cis-1,2-Dichloroethylene	156-59-2	5.00E+02	5.00E+01 HRL		1.4E+00	3.2E+03 RC	3.3E+03 RC		8.0E-01	5.0E-01		4.0E-01				
trans-1,2-Dichloroethylene	156-60-5	3.00E+02	1.00E+02 HRL		1.4E+00	8.6E+01	7.4E+01									
Dichlorofluoromethane	75-43-4	7.00E+01							2.3E+00	5.0E-01						
Ethylbenzene	100-41-4	7.00E+03	7.00E+02 HRL													
Isopropylbenzene	98-82-8		3.00E+02 HRL*													
p-Isopropyltoluene	99-87-6															
Methylene chloride (dichloromethane)	75-09-2	4.00E+02	5.00E+00 HRL													
Naphthalene	91-20-3	1.00E+03	3.00E+02 HRL													
n-Propylbenzene	103-65-1															
Styrene	100-42-5	2.00E+04	1.00E+02 MCL													
Tetrachloroethylene (PCE)	127-18-4	6.00E+01	5.00E+00 HRL			4.0E+00	3.4E+00		1.8E-01 J	1.7E+00		5.0E-01				
Toluene	108-88-3	4.00E+04	1.00E+03 HRL	3.0E-01 J	2.0E-01 J	2.0E-01 J	2.0E-01 J		2.0E-01 J	1.0E-01 J	9.0E-01	9.0E-01	2.0E-01 J		2.0E-01 J	2.0E-01 J
1,1,1-Trichloroethane	71-55-6	3.00E+03	9.00E+03 HRL		3.0E-01											
1,1,2-Trichloroethane	79-00-5	4.00E+01	3.00E+00 HRL							1.0E-01 J						
Trichloroethylene (TCE)	79-01-6	2.00E+01	5.00E+00 HRL		6.8E+01	6.9E+00	6.2E+00		2.0E-01	1.5E+00			5.0E-02 J			
1,2,4-Trimethylbenzene	95-63-6	7.00E+01														
1,3,5-Trimethylbenzene	108-67-8	7.00E+01	1.00E+02 HRL													
Vinyl Chloride	75-01-4	1.00E+00	2.00E-01 HRL			1.2E+02 RC	1.2E+02 RC		1.4E+00	1.0E-01 J						
o-Xylene	95-47-6	1.00E+03	1.00E+04 HRL													
p&m-Xylene	106-42-3 108-38-3	8.00E+02	1.00E+04 HRL													

Notes:

J - The analyte was positively identified. The result is below the report level and is estimated

GW_{ISV} - Groundwater Intrusion Screening Values - Risk Based Guidance for the Vapor Intrusion Pathway. MPCA, Superfund RCRA and Voluntary Cleanup Section September 2008 - http://www.pca.state.mn.us/publications/c-s4-06.pdf

HRL - Minnesota Health Risk Limits for Groundwater: http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html

HRL* - Due to newly accumulated data MDH no longer recommends that value

MCL - Maximum Contaminant Level http://www.epa.gov/safewater/contaminants/index.html#mcls

ND - Below Laboratory Report Level

RC - Report level was changed due to sample dilution

- Measured groundwater concentration exceeds GW_{ISV}

- Measured groundwater concentration exceeds HRL/MCL

St. Louis Park VOC Sources Investigation
AECOM Project Number: 04660024

Table 2. Groundwater Samples VOC Analytical Results
(only detected VOCs included)

Chemical	CAS Number	GW_{ISV}	Drinking Water Standard	W1 Bryant Graphics, 6504 Walker St.	W2 Bryant Graphics, 6504 Walker St.	W1 Prof. Instruments, 6824 Lake St. W.	W2 Prof. Instruments, 6824 Lake St. W.	W3 Prof. Instruments, 6824 Lake St. W.	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
		[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]	[ug/L]
Lab Sample ID:				200911595	200911596	200911597	200911660	200911659	200904545	200906776	200911594	200911598	200911661
Acetone	67-64-1	5.00E+05	7.00E+02 HRL										
Benzene	71-43-2	4.00E+01	2.00E+00 HRL		1.0E-01 J		1.0E-01 J	1.0E-01 J					
Bromodichloromethane	75-27-4	2.00E+01	6.00E+00 HRL		3.0E-01								
Bromomethane	74-83-9	3.00E+01	1.00E+01 HRL						5.0E-01 J				
tert-Butylbenzene	98-06-6												
Chloroform	67-66-3	1.00E+03	3.00E+01 HRL		5.0E-01			2.0E-01					
Chloromethane	74-87-3	2.00E+01											
1,1-Dichloroethane	75-34-3	4.00E+03	7.00E+01 HRL										
1,2-Dichloroethane	107-06-2	2.00E+01	4.00E+00 HRL										
1,1-Dichloroethene	75-35-4	3.00E+02	2.00E+02 HRL										
cis-1,2-Dichloroethylene	156-59-2	5.00E+02	5.00E+01 HRL	3.0E-01									
trans-1,2-Dichloroethylene	156-60-5	3.00E+02	1.00E+02 HRL	2.0E-01									
Dichlorofluoromethane	75-43-4	7.00E+01											
Ethylbenzene	100-41-4	7.00E+03	7.00E+02 HRL				3.0E-01 J						
Isopropylbenzene	98-82-8		3.00E+02 HRL*										
p-Isopropyltoluene	99-87-6												
Methylene chloride (dichloromethane)	75-09-2	4.00E+02	5.00E+00 HRL										
Naphthalene	91-20-3	1.00E+03	3.00E+02 HRL										
n-Propylbenzene	103-65-1												
Styrene	100-42-5	2.00E+04	1.00E+02 MCL										
Tetrachloroethylene (PCE)	127-18-4	6.00E+01	5.00E+00 HRL	$\boxed{5.8E+01}$	1.2E+00	4.7E+00	$\boxed{1.2E+01}$	3.8E+00					
Toluene	108-88-3	4.00E+04	1.00E+03 HRL		3.0E-01 J		4.0E-01 J	3.0E-01 J					
1,1,1-Trichloroethane	71-55-6	3.00E+03	9.00E+03 HRL										
1,1,2-Trichloroethane	79-00-5	4.00E+01	3.00E+00 HRL										
Trichloroethylene (TCE)	79-01-6	2.00E+01	5.00E+00 HRL	3.8E+00	3.4E+00	1.5E+00	9.0E-01	2.0E+00					
1,2,4-Trimethylbenzene	95-63-6	7.00E+01											
1,3,5-Trimethylbenzene	108-67-8	7.00E+01	1.00E+02 HRL										
Vinyl Chloride	75-01-4	1.00E+00	2.00E-01 HRL										
o-Xylene	95-47-6	1.00E+03	1.00E+04 HRL										
p&m-Xylene	106-42-3 108-38-3	8.00E+02	1.00E+04 HRL										

Notes:

J - The analyte was positively identified. The result is below the report level and is estimated
GW_{ISV} - Groundwater Intrusion Screening Values - Risk Based Guidance for the Vapor Intrusion Pathway. MPCA, Superfund RCRA and Voluntary Cleanup Section September 2008 - http://www.pca.state.mn.us/publications/c-s4-06.pdf
HRL - Minnesota Health Risk Limits for Groundwater: http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html
HRL* - Due to newly accumulated data MDH no longer recommends that value
MCL - Maximum Contaminant Level http://www.epa.gov/safewater/contaminants/index.html#mcls
ND - Below Laboratory Report Level
RC - Report level was changed due to sample dilution
- Measured groundwater concentration exceeds GW_{ISV}
- Measured groundwater concentration exceeds HRL/MCL

S. Louis Park Investigation FY15
AECOM Project Number 60335087

Table 2
Temporary Well Groundwater Analytical Results

Compounds	Health Based Guidance Values			Former Super Radiator Coils									
			Sample Location	B6-W-(60-64)	B6-W-(66-70)	B7-W-(66-70)	B8-W-(50-54)	B8-W-(50-54)-Y	B8-W-(66-70)	B9-W-(44-48)	B9-W-(50-54)	B9-W-(66-70)	B10-W-(44-48)
			Date	1/20/2015	1/20/2015	1/20/2015	1/19/2015	Duplicate	1/16/2015	1/16/2015	1/16/2015	1/16/2015	1/14/2015
	HRL	HBV	RAA										
1,1-Dichloroethane	NE	NE	100	<10.0	<10.0	<1.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<1.0
1,1-Dichloroethene	200	NE	NE	<10.0	<10.0	<1.0	<10.0	<10.0	**13**	<10.0	<10.0	<10.0	<1.0
1,2,4-Trimethylbenzene	NE	NE	100	<10.0	<10.0	<1.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<1.0
1,2-Dichloroethane	1	NE	NE	<10.0*	<10.0*	<1.0	<10.0*	<10.0*	<10.0*	<10.0*	<10.0*	<10.0*	<1.0
Benzene	2	NE	NE	<10.0*	<10.0*	**11**	<10.0*	<10.0*	**34**	<10.0*	<10.0*	**39**	<1.0
Dichlorodifluoromethane	700	NE	NE	<10.0	<10.0	<1.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<1.0
Ethylbenzene	50	NE	NE	<10.0	<10.0	<1.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<1.0
Isopropylbenzene (Cumene)	300	NE	NE	<10.0	<10.0	<1.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<1.0
Naphthalene	70	NE	NE	<10.0	<10.0	**1.1**	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<1.0
Tetrachloroethene (PCE)	5	4	NE	<10.0*	<10.0*	**1.8**	**480**	**490**	**57**	**52**	**1900**	<10.0*	**7.6**
Trichloroethene (TCE)	5	0.4	NE	**13**	<10.0*	<1.0*	**20**	**21**	<10.0*	<10.0*	**40**	<10.0*	**1.5**
Vinyl chloride	0.2	NE	NE	**12**	**39**	**37**	<10.0*	<10.0*	**120**	<10.0*	**10**	**230**	<1.0*
Xylene (Total)	300	NE	NE	<10.0	<10.0	<1.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<1.0
cis-1,2-Dichloroethene (DCE)	50	NE	NE	**390**	**1600**	**210 D2**	**290**	**340**	**4700**	**16**	**99**	**1300**	**7.5**
trans-1,2-Dichloroethene	40	NE	NE	<10.0	**30**	**23**	**11**	**11**	**76**	<10.0	**11**	**100**	<1.0

Notes:
< = less than laboratory reporting limit
BOLD text indicates result is above reporting limit
YELLOW BACKGROUND = concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit
HBV = Health Based Value
RAA = Risk Assessment Advice
NE = not established
* = laboratory reporting limit is greater than established HRL value
concentrations are reported in micrograms per liter (μ/L)
-W designates water sample
-Y designates a duplicate sample
-N designates a non-duplicate sample
D2 designates the sample required dilution due to high
concentration of target analyte

S. Louis Park Investigation FY15
AECOM Project Number 60335087

Table 2
Temporary Well Groundwater Analytical Results

Compounds	HRL	HBV	RAA	B10-W-(66-70)	B11-W-(50-54)	B11-W-(66-70)	B12-W-(42-46)	B12-W-(64-68)	B13-W-(42-46)	B13-W-(50-54)	B13-W-(66-70)	B14-W-(42-46)	B14-W-(55-59)
				Former Super Radiator Coils									
			Sample Location	B10-W-(66-70)	B11-W-(50-54)	B11-W-(66-70)	B12-W-(42-46)	B12-W-(64-68)	B13-W-(42-46)	B13-W-(50-54)	B13-W-(66-70)	B14-W-(42-46)	B14-W-(55-59)
			Date	1/14/2015	1/13/2015	1/13/2015	1/15/2015	1/15/2015	1/21/2015	1/21/2015	1/21/2015	1/22/2015	1/22/2015
	Health Based Guidance Values												
Compounds	**HRL**	**HBV**	**RAA**										
1,1-Dichloroethane	**NE**	**NE**	**100**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
1,1-Dichloroethene	**200**	**NE**	**NE**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
1,2,4-Trimethylbenzene	**NE**	**NE**	**100**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
1,2-Dichloroethane	**1**	**NE**	**NE**	<10.0*	<10.0*	<10.0*	<10.0*	<1.0	<1.0	<1.0	<10.0*	<1.0	<1.0
Benzene	**2**	**NE**	**NE**	<10.0*	<10.0*	<10.0*	<10.0*	<1.0	<1.0	<1.0	<10.0*	<1.0	<1.0
Dichlorodifluoromethane	**700**	**NE**	**NE**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
Ethylbenzene	**50**	**NE**	**NE**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
Isopropylbenzene (Cumene)	**300**	**NE**	**NE**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
Naphthalene	**70**	**NE**	**NE**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
Tetrachloroethene (PCE)	**5**	**4**	**NE**	**34**	**970**	<10.0*	**310 D2**	**73**	<1.0	**20**	<10.0*	<1.0	**5.3**
Trichloroethene (TCE)	**5**	**0.4**	**NE**	**20**	**21**	**11**	<10.0*	**7.9**	<1.0*	**3.2**	<10.0*	<1.0*	**10**
Vinyl chloride	**0.2**	**NE**	**NE**	<10.0*	<10.0*	**17**	<10.0*	**3**	<1.0*	<1.0*	**24**	**1.1**	**4.1**
Xylene (Total)	**300**	**NE**	**NE**	<10.0	<10.0	<10.0	<10.0	<1.0	<1.0	<1.0	<10.0	<1.0	<1.0
cis-1,2-Dichloroethene (DCE)	**50**	**NE**	**NE**	**240**	**24**	**260**	<10.0	**66**	**7.3**	<1.0	**400**	**39**	**70**
trans-1,2-Dichloroethene	**40**	**NE**	**NE**	**18**	<10.0	**22**	<10.0	**8.7**	<1.0	<1.0	**16**	**1.1**	**4**

Notes:
< = less than laboratory reporting limit
BOLD text indicates result is above reporting limit
YELLOW BACKGROUND = concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit
HBV = Health Based Value
RAA = Risk Assessment Advice
NE = not established
* = laboratory reporting limit is greater than established HRL value
concentrations are reported in micrograms per liter (μ/L)
-W designates water sample
-Y designates a duplicate sample
-N designates a non-duplicate sample
D2 designates the sample required dilution due to high
concentration of target analyte

S. Louis Park Investigation FY15
AECOM Project Number 60335087

Table 2
Temporary Well Groundwater Analytical Results

Compounds				Former Super Radiator Coils						Former National Lead		
			Sample Location	B14-W-(66-70)	B15-W-(40-44)	B15-W-(66-70)	B16-W-(41-42)	B16-W-(69-70)	B16-W-(69-70)-Y	B17-W-(28-32)	B17-W-(56-60)	B17-W-(64-68)
			Date	1/22/2015	1/28/2015	1/28/2015	1/28/2015	1/28/2015	Duplicate	1/26/2015	1/26/2015	1/26/2015
	Health Based Guidance Values											
Compounds	**HRL**	**HBV**	**RAA**									
1,1-Dichloroethane	**NE**	**NE**	**100**	<10.0	<1.0	**2.1**	**3.8**	**13**	**13**	<1.0	<1.0	<1.0
1,1-Dichloroethene	**200**	**NE**	**NE**	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	**NE**	**NE**	**100**	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	**1**	**NE**	**NE**	<10.0*	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.7**	**1.6**
Benzene	**2**	**NE**	**NE**	<10.0*	<1.0	**5.9**	**18**	**49**	**47**	**2**	**6.7**	**47**
Dichlorodifluoromethane	**700**	**NE**	**NE**	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.8**
Ethylbenzene	**50**	**NE**	**NE**	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene (Cumene)	**300**	**NE**	**NE**	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.5**
Naphthalene	**70**	**NE**	**NE**	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.4**	**12**
Tetrachloroethene (PCE)	**5**	**4**	**NE**	<10.0*	**1**	<1.0	**9.6**	**1.4**	**1.4**	<1.0	<1.0	<1.0
Trichloroethene (TCE)	**5**	**0.4**	**NE**	<10.0*	<1.0*	**1.7**	**5.9**	**1.6**	**1.5**	<1.0*	<1.0*	<1.0*
Vinyl chloride	**0.2**	**NE**	**NE**	**37 D2**	**1.7**	**52**	**82**	**190 D2**	**190 D2**	<1.0*	**14**	**2.2**
Xylene (Total)	**300**	**NE**	**NE**	<10.0	<1.0	<1.0	<1.0	**3.6**	**3.4**	<1.0	<1.0	**3.8**
cis-1,2-Dichloroethene (DCE)	**50**	**NE**	**NE**	**1200 D2**	**65**	**730 D2**	**1800 D2**	**4800 D2**	**4700 D2**	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	**40**	**NE**	**NE**	**39 D2**	**1.7**	**25**	**37**	**100 D2**	**110 D2**	<1.0	<1.0	<1.0

Notes:
< = less than laboratory reporting limit
BOLD text indicates result is above reporting limit
YELLOW BACKGROUND = concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit
HBV = Health Based Value
RAA = Risk Assessment Advice
NE = not established
* = laboratory reporting limit is greater than established HRL value
concentrations are reported in micrograms per liter (μ/L)
-W designates water sample
-Y designates a duplicate sample
-N designates a non-duplicate sample
D2 designates the sample required dilution due to high
concentration of target analyte

S. Louis Park Investigation FY15
AECOM Project Number 60335087

Table 2
Temporary Well Groundwater Analytical Results

Compounds				Former National Lead						
	Sample Location			B17-W-(64-68)-Y	B18-W-(19-23)	B18-W-(40-44)	B18-W-(60-64)	B19-W-(11-15)	B19-W-(38-42)	B19-W-(61-65)
	Date			Duplicate	1/27/2015	1/27/2015	1/27/2015	1/29/2015	1/29/2015	1/29/2015
	Health Based Guidance Values									
	HRL	HBV	RAA							
1,1-Dichloroethane	**NE**	**NE**	**100**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	**200**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	**NE**	**NE**	**100**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**2**
1,2-Dichloroethane	**1**	**NE**	**NE**	**1.6**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	**2**	**NE**	**NE**	**47**	**2.8**	**3.1**	**67**	<1.0*	**2.1**	**33**
Dichlorodifluoromethane	**700**	**NE**	**NE**	**1.6**	**1.3**	<1.0	**1.2**	<1.0	<1.0	**1 L3, V4, Z-01f**
Ethylbenzene	**50**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.4**
Isopropylbenzene (Cumene)	**300**	**NE**	**NE**	**1.6**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.7**
Naphthalene	**70**	**NE**	**NE**	**12**	<1.0	<1.0	**1.3**	<1.0	<1.0	**42**
Tetrachloroethene (PCE)	**5**	**4**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene (TCE)	**5**	**0.4**	**NE**	<1.0*	<1.0*	<1.0*	<1.0*	<1.0*	<1.0*	<1.0*
Vinyl chloride	**0.2**	**NE**	**NE**	**2.2**	<1.0*	<1.0*	<1.0*	<1.0*	**3.2**	**1.6**
Xylene (Total)	**300**	**NE**	**NE**	**3.9**	<1.0	<1.0	**4.3**	<1.0	<1.0	**7.6**
cis-1,2-Dichloroethene (DCE)	**50**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	**1.1**	**10**	**4.4**
trans-1,2-Dichloroethene	**40**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
< = less than laboratory reporting limit
BOLD text indicates result is above reporting limit
YELLOW BACKGROUND = concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit
HBV = Health Based Value
RAA = Risk Assessment Advice
NE = not established
* = laboratory reporting limit is greater than established HRL value
concentrations are reported in micrograms per liter (μ/L)
-W designates water sample
-Y designates a duplicate sample
-N designates a non-duplicate sample
D2 designates the sample required dilution due to high
concentration of target analyte

St. Louis Park Solvent Plume - Former EPS Printing
AECOM Project 60309548

Table 2
Temporary Well Groundwater Analytical Results
St. Louis Park Solvent Plume - Former EPS Printing - St. Louis Park, Minnesota
Concentrations are Reported in µg/L
Partial Listing - Only Compounds Detected are Listed

			Sample Identification	SB-1-W (40-44)	SB-1-W (50-54)	Dup SB-1-W (50-54)	SB-2-W (40-44)	Dup SB-2-W (40-44)	SB-2-W (50-54)	SB-3-W (45-49)	SB-3-W (70-74)	SB-3-W (90-94)	SB-4-W (40-44)	SB-4-W (50-54)	SB-5-W (39-43)	SB-5-W (46-50)	Dup SB-5-W (46-50)	SB-6-W (40-44)	SB-6-W (50-54)	SB-7-W (41-45)	SB-7-W (66-70)	SB-7-W (91.5-95.5)	Trip Blank	FB-BK-1	FB-BK-2
			Date	12/12/13	12/12/13	12/12/13	12/13/13	12/13/13	12/13/13	12/13/13	12/13/13	12/13/13	12/11/13	12/11/13	12/11/13	12/11/13	12/11/13	12/12/13	12/12/13	12/12/13	12/12/13	12/12/13	12/11/13	12/12/13	12/13/13
	Health Based Guidance Values																								
Compounds	**HRL**	**HBV**	**RAA**																						
1,1-Dichloroethene	**200**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20.0	<1.0	<20.0	<20.0	**1.4**	**5.1**	<50.0	<1.0	<1.0	<1.0
Benzene	**2**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.6**	**17.6**	<1.0	<1.0	<1.0	<20.0	<1.0	<20.0	<20.0	**2.8**	**6.0**	<50.0	<1.0	<1.0	<1.0
Tetrachloroethene (PCE)	**5**	**NE**	**NE**	**9.1**	**30.4**	**29.8**	<1.0	<1.0	**4.8**	**8.1**	<1.0	<1.0	<1.0	**5.6**	**761**	**2400**	**2360**	**1070**	**2030**	**696**	**17.7**	<50.0	<1.0	<1.0	<1.0
Trichloroethene (TCE)	**5**	**0.4***	**NE**	**0.96**	**11.8**	**11.8**	**2.1**	**2.1**	**5.8**	**4.1**	**1.0**	<0.40	**2.5**	**8.6**	**5.7**	<20.0	**8.1**	<8.0	**10.1**	**7.1**	**8.4**	<20.0	<1.0	<0.40	<0.40
Vinyl chloride	**0.2***	**NE**	**NE**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	**27.4**	**4.4**	<0.40	<0.40	<0.40	<8.0	<0.40	<8.0	<8.0	**9.4**	**38.6**	**121**	<0.40	<0.40	<0.40
cis-1,2-Dichloroethene	**50**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**2.1**	**171**	**27.7**	<1.0	<1.0	**4.7**	<20.0	**4.0**	<20.0	<20.0	**333**	**1540**	**5200**	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	**40**	**NE**	**NE**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**10.0**	**12.8**	<1.0	<1.0	**1.7**	<20.0	**2.2**	<20.0	<20.0	**16.5**	**53.8**	**193**	<1.0	<1.0	<1.0

Notes
< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit
= Concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit
HBV = Health Based Value
RAA = Risk Assessment Advice
NE = Not Established
* = Laboratory reporting limit is greater than established groundwater standard (HRL/HBV)

St. Louis Park Investigation
AECOM Project Number 60317420

Table 2
Temporary Well Groundwater Analytical Results

	Super Radiator Coils Tube Fab Division						Super Radiator Coils						Sidal Realty					
Chemical	B1-W-N (38-42)	B1-W-N (52-56)	B1-W-Y (52-56)	B1-W-N (72-76)	B2-W-N (40-45)	B3-W-N (40-45)	B4-W-N (46-50)	B5-W-N (46-50)	B5-W-N (52-56)	B5-W-N (76-80)	B6-W-N (46-50)	B6-W-Y (46-50)	B7-W-N (36-40)	B7-W-N (71-75)	Trip Blank	HRL	HBV	RAA
1,2,4-Trimethylbenzene	< 1.0	**86**	**79**	**72**	**61**	**55**	< 5.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 1.0	< 5.0	< 1.0	NE	NE	100
1,3,5-Trimethylbenzene	< 1.0	**13**	**12**	**16**	**13**	**13**	< 5.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 1.0	< 5.0	< 1.0	100	--	--
Benzene	< 1.0	**82**	**81**	**99**	**63**	**61**	< 5.0*	< 10.0*	< 10.0*	**29**	< 10.0*	< 10.0*	< 1.0	**33**	< 1.0	2	--	--
cis-1,2-Dichloroethene	< 1.0	< 10.0	< 10.0	< 10.0	< 5.0	< 5.0	< 5.0	< 10.0	**69**	**1400**	< 10.0	< 10.0	< 1.0	**1100**	< 1.0	50	--	--
Ethylbenzene	< 1.0	**110**	**110**	**130**	**76**	**72**	< 5.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 1.0	< 5.0	< 1.0	50	--	--
Isopropylbenzene	< 1.0	**14**	**13**	**14**	**12**	**10**	< 5.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 1.0	< 5.0	< 1.0	300	--	--
Naphthalene	**5.4**	**3500**	**3400**	**2000**	**2300**	**1900**	< 5.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 1.0	**7.6**	< 1.0	70	--	--
o-Xylene	< 1.0	**71**	**68**	**75**	**47**	**45**	< 5.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 1.0	< 5.0	< 1.0	300	--	--
p&m-Xylene	< 1.0	**43**	**40**	**75**	**42**	**39**	< 5.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 1.0	< 5.0	< 1.0	300	--	--
Tetrachloroethylene	< 1.0	< 10.0*	< 10.0*	< 10.0*	< 5.0	< 5.0	**110**	**650**	**21000**	**380**	**520**	**390**	< 1.0	**34**	< 1.0	5	--	--
trans-1,2-Dichloroethene	< 1.0	< 10.0	< 10.0	< 10.0	< 5.0	< 5.0	< 5.0	< 10.0	< 10.0	**60**	< 10.0	< 10.0	< 1.0	**100**	< 1.0	40	--	--
Trichloroethene (TCE)	**9.4**	< 10.0*	< 10.0*	< 10.0*	< 5.0	< 5.0	< 5.0	< 10.0*	**150**	< 10.0*	< 10.0*	< 10.0*	**2.5**	**160**	< 1.0	5	0.4	--
Vinyl chloride	< 1.0*	< 10.0*	< 10.0*	< 10.0*	< 5.0*	< 5.0*	< 5.0*	< 10.0*	< 10.0*	**240**	< 10.0*	< 10.0*	< 1.0*	**37**	< 1.0*	0.2	--	--

Notes
< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit
= Concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit established by MPCA
HBV = Health Based Value established by MPCA
RAA = Risk Assessment Advice established by MPCA
All compounds described in micrograms per liter (μg/L)
NE = Not Established
* = Laboratory reporting limit is greater than established groundwater standard (HRL/HBV)
Only compounds detected are shown

Table 2
Temporary Well Groundwater Analytical Results
St. Louis Park Solvent Plume - Former Flame Metals - St. Louis Park, Minnesota
Concentrations are Reported in micrograms per liter
Partial Listing - Only Compounds Detected are Listed

			Sample Identification	SB-1-W (12-16')	SB-1-W (46-50')	SB-1-W (54-58')	SB-1-W (71-75')	SB-2-W (12-16')	SB-2-W (46-50')	Dup-SB-2-W (46-50')	SB-3-W (13-18')	SB-3-W (46-50')	SB-3-W (68-72')	SB-4-W (11-15')	SB-4-W (46-50')	SB-5-W (12-16')	SB-5-W (46-50')	SB-6-W (15-19')	Dup-SB-6-W (15-19')	SB-6-W (46-50')	Trip Blank	FB-020314	FB-020514
			Date	2/3/14	2/3/14	2/3/14	2/3/14	2/5/14	2/5/14	2/5/14	2/5/14	2/5/14	2/5/14	2/4/14	2/4/14	2/3/14	2/3/14	2/3/14	2/3/14	2/3/14	1/29/14	2/3/14	2/5/14
	Health Based Guidance Values																						
Compounds	**HRL**	**HBV**	**RAA**																				
Acetone	**4,000**	**NE**	**NE**	<20	<20	<20	NA	<20	<20	<20	**37**	NA	NA	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20

Notes
NA = not analyzed
< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit
= Concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit
HBV = Health Based Value
RAA = Risk Assessment Advice
NE = Not Established
* = Laboratory reporting limit is greater than established groundwater standard (HRL/HBV)

Table 3
Well Construction Details; St. Louis Park Edina, MN

Well Name	Unique #	Well Type	Aquifer Type	Easting	Northing	Ground/ Reference Elevation (ft)	Well Depth (ft)	Screen/Open Hole Length (ft)	Bottom of Casing (ft)	Bottom Of Screen (ft)	Screen Top Elevation (ft)	Screen Bottom Elevation (ft)	Screen Slot Size (in)	Protective Casing Elevation (ft)
P109	216194	PZ	Drift	470406	4977204	895.11	44	2	42	44	853.11	851.11	-	895.11
P307	462926	PZ	Drift	470596	4976193	913.1	73.7	10	63.7	73.7	849.4	839.4	0.001	913.1
P308	462927	PZ	Drift	470633.865	4976014.682	923.29	68.7	10	58.7	68.7	864.59	854.59	0.001	923.29
P309	462928	PZ	Drift	471160.289	4976250.516	925.16	73	10	63	73	862.16	852.16	0.001	925.16
P310	462929	PZ	Drift	471308.147	4976253.025	921.48	69.5	10	59.5	69.5	861.98	851.98	0.001	921.48
W10	216038	MW	Drift	471022.09	4977518.492	892.03	29	4	25	29	867.03	863.03	12	892.03
W116	160030	MW	Drift	468219.448	4979495.085	909.54	67	4	63	67	846.54	842.54	-	909.54
W117	160031	MW	Drift	470613	4978367	917.75	72	4	68	72	849.75	845.75	15	917.75
W128	165583	MW	Drift	471206	4976017	922.89	67	4	63	67	859.89	855.89	12	922.89
W136	165591	MW	Drift	471447	4976079	919.17	53	4	49	53	870.17	866.17	15	919.17
W16	216044	MW	Drift	472819	4974463	891	64	-	-	-	-	-	-	-
W420	434045	MW	Drift	474274.505	4974558.308	895.88	67	22	40	67	855.84	828.84	70	895.84
W423	439813	MW	Drift	474695.847	4976749.676	917.51	45	10	35	45	882.51	872.51	10	917.51
W425	439814	MW	Drift	471006.778	4977206.979	923.81	45	10	35	45	888.76	878.76	10	923.76
W427	439811	MW	Drift	473314	4976147	919.4	47	10	35	45	884.4	874.4	10	919.4
W101	149711	MW	OPVL	473204	4975130	918.03	106	0	103	106	815.03	812.03	-	918.03
W120	165576	MW	OPVL	472031.284	4976143.628	919.81	105.7	0	100	109	819.9	810.9	-	919.9
W121	165577	MW	OPVL	472873	4975534	922.85	113.25	5	109	115	813.85	807.85	15	922.85
W123	165580	MW	OPVL	472485	4976067	909.36	103	0	93	103	816.36	806.36	-	909.36
W130	165585	MW	OPVL	472489	4976044	894.83	88	0	80	88	814.83	806.83	-	894.83
W131	165586	MW	OPVL	470967.913	4975412.223	919.27	107	0	97	107	822.27	812.27	-	919.27

Notes:
TOC=Top of Casing
-=No Data Available
PZ=Piezometer
IR=Irrigation

MW=Monitoring Well
OSTP=St. Peter
OPVL=Platteville
PCJ=Prairie du Chien-Jordan

SLP=St. Louis Park Well
H=Hopkins Well
ED=Edina Well

Table 3
Well Construction Details; St. Louis Park Edina, MN

Well Name	Unique #	Well Type	Aquifer Type	Easting	Northing	Ground/ Reference Elevation (ft)	Well Depth (ft)	Screen/Open Hole Length (ft)	Bottom of Casing (ft)	Bottom Of Screen (ft)	Screen Top Elevation (ft)	Screen Bottom Elevation (ft)	Screen Slot Size (in)	Protective Casing Elevation (ft)
W132	165587	MW	OPVL	472373.522	4976119.542	904.95	93	0	86	93	818.95	811.95	-	904.95
W143	216051	MW	OPVL	472153.333	4976139.775	905.31	90	0	70	90	835.31	815.31	-	905.31
W18	216046	MW	OPVL	471890.362	4975109.247	893.33	78	7	71	78	822.27	815.27	-	893.27
W20	216048	MW	OPVL	471679.97	4976660.382	895.83	80	0	80	90	815.83	805.83	-	895.83
W27	216052	MW	OPVL	470426.197	4977198.416	910.47	112	0	81	112	829.47	798.47	-	910.47
W421	434044	MW	OPVL	473828.616	4975388.85	895.86	84	0	67	84	828.82	811.82	-	895.82
W424	439809	MW	OPVL	474398	4976763	917.57	110	0	100	110	817.57	807.57	-	917.57
W426	439812	MW	OPVL	471012.638	4976406.944	923.95	116	0	99.5	116	824.41	807.91	-	923.91
W428	439810	MW	OPVL	471478.758	4975870.207	919.4	109	0	98	109	821.4	810.4	-	919.4
W431	462935	MW	OPVL	472032.9566	4975812.446	922.77	114.1	8	106.15	114.15	816.62	808.62	0.006	921.98
W432	462930	MW	OPVL	472036.3671	4975812.132	919.02	109	0	96.5	109	822.52	810.02	-	919.02
W433	462933	MW	OPVL	472034.8168	4975814.927	925.84	112	0	96	112	829.84	813.84	8	925.84
W434	463012	MW	OPVL	471540	4975853	920.7	112	15	97	112	823.59	808.59	0.015	920.59
W437	498917	MW	OPVL	471638	4975946	913.18	104	0	94	104.167	819.18	809.013	-	913.18
W438	498919	MW	OPVL	470954.35	4976063.872	921.12	106.5	10	96.5	106.5	824.62	814.62	10	921.12
W122	165578	MW	OSTP	470755.628	4976350.34	918.58	239	0	217	239	701.58	679.58	-	918.58
W129	165584	MW	OSTP	471822	4975893	916.33	122	5	117	122	799.33	794.33	10	916.33
W133	165588	MW	OSTP	472031.693	4976146.598	921.06	122	6	116	122	805.06	799.06	12	921.06
W33	206449	MW	OSTP	477021	4980762	906.15	182	-	-	-	-	-	-	907.55
W33R	753534	MW	OSTP	478467	4980343	894/893.99	-	-	-	-	-	-	-	-

Notes:
TOC=Top of Casing
-=No Data Available
PZ=Piezometer
IR=Irrigation

MW=Monitoring Well
OSTP=St. Peter
OPVL=Platteville
PCJ=Prairie du Chien-Jordan

SLP=St. Louis Park Well
H=Hopkins Well
ED=Edina Well

Table 3
Well Construction Details; St. Louis Park Edina, MN

Well Name	Unique #	Well Type	Aquifer Type	Easting	Northing	Ground/ Reference Elevation (ft)	Well Depth (ft)	Screen/Open Hole Length (ft)	Bottom of Casing (ft)	Bottom Of Screen (ft)	Screen Top Elevation (ft)	Screen Bottom Elevation (ft)	Screen Slot Size (in)	Protective Casing Elevation (ft)
W410	434042	MW	OSTP	470987.393	4976083.949	908.04	125	20	105	125	803.04	783.04	10	908.04
W411	432035	MW	OSTP	471591	4976423	896.25	111	27	83	110	813.25	786.25	0.01	896.25
W412	432034	MW	OSTP	472269	4976380	915.17	139.9	27	112	139	803.17	776.17	0.01	915.17
E13	203613	ED	PCJ	Not Public Data	Not Public Data	935/935.47	495	66	429	495	506	440	-	-
E15	207674	ED	PCJ	Not Public Data	Not Public Data	898/898.1	475	200	275	475	623	423	-	-
E2	208399	ED	PCJ	Not Public Data	Not Public Data	879/879.85	446	180	266	446	613	433	-	-
E7	206474	ED	PCJ	Not Public Data	Not Public Data	953/953.97	547	197	350	547	603	406	-	-
EDTW1	748656	MW	PCJ	470992	4976095	899/902.03	450	179	271	450	631.03	452.03	-	-
H6	112228	H	PCJ	Not Public Data	Not Public Data	961	545	191	354	545	571.45	380.45	-	925.45
SLP16	203187	SLP	PCJ	Not Public Data	Not Public Data	934.34	500	75	425	500	509.34	434.34	-	-
SLP4	200542	SLP	PCJ	Not Public Data	Not Public Data	904.87	490	186	304	490	600.87	414.87	-	-
SLP5	203196	SLP	PCJ	Not Public Data	Not Public Data	927.13	465	160	305	465	622.13	462.13	-	-
SLP6	206457	SLP	PCJ	Not Public Data	Not Public Data	914.87	480	177	303	480	611.87	434.87	-	-
W112	206443	MW	PCJ	469650.795	4976569.893	917.52	540	247	293	540	624.52	377.52	-	917.52
W118	216088	MW	PCJ	471160.91	4977294.004	905	487	-	-	-	-	-	-	-
W119	216009	IR	PCJ	471020.352	4975599.63	890	502	245	257	502	633	388	-	890
W23	216050	MW	PCJ	471003	4975601	897.22	909	536	373	909	524.22	-11.78	-	897.22
W29	206454	MW	PCJ	469495	4975270	896.2	335	78	257	335	639.2	561.2	-	896.2
W401	453805	MW	PCJ	470667	4976172	922.99	-	-	-	-	-	-	-	922.99
W403	439751	MW	PCJ	470543	4976204	868.21	385	150	235	385	633.21	483.21	-	868.21
Edina CC#3	161443	IR	PCJ	472693	4972663	918	492	202	290	-	-	-	-	-
Edina CC #2	236157	IR	PCJ	472927	4972621	908	490	203	287	-	-	-	-	-

Notes:
TOC=Top of Casing
-=No Data Available
PZ=Piezometer
IR=Irrigation

MW=Monitoring Well
OSTP=St. Peter
OPVL=Platteville
PCJ=Prairie du Chien-Jordan

SLP=St. Louis Park Well
H=Hopkins Well
ED=Edina Well

Table 3
Well Construction Details; St. Louis Park Edina, MN

Well Name	Casing Diameter (in)	Pack Material	Sandpack Top	Casing Material	Screen Material	Grout	Well Diameter (in)	Contractor	Drill Method	StartDate	Abandon Date	Notes
P109	1.25	-	-	-	-	-	1.25	-	-	25-Jan-80	-	Ground/Reference Elevation are TOC
P307	2	Red Filter Sand 45-55	61.7	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite	2	E.H. Renner & Sons	Mud Rotary	29-Nov-90	-	Ground/Reference Elevation are TOC
P308	2	Red Filter Sand 45-55	56.5	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite	2	E.H. Renner & Sons	Mud Rotary	06-Dec-90	-	Ground/Reference Elevation are TOC
P309	2	Red Filter Sand 45-55	61	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite	2	E.H. Renner & Sons	Mud Rotary	27-Nov-90	-	Ground/Reference Elevation are TOC
P310	2	Red Filter Sand 45-55	62	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite or Bentonite Slurry	2	E.H. Renner & Sons	Cable Tool	21-Nov-90	-	Ground/Reference Elevation are TOC
W10	4	-	-	-	-	-	4	E.H. Renner & Sons	-	03-Feb-89	-	-Ground/Reference Elevation are TOC -Screen assumed
W116	4	-	-	-	-	-	4	E. H. Renner	-	01-Apr-79	19-Nov-10	-Ground/Reference Elevation are TOC -Screen assumed
W117	4	-	-	-	-	-	4	E. H. Renner	-	01-Apr-79	-	Ground/Reference Elevation are TOC
W128	4	-	-	-	-	-	4	E.H. Renner & Sons	Cable Tool	14-Sep-79	-	Ground/Reference Elevation are TOC
W136	4	-	-	Johnson SS	-	-	4	E.H. Renner & Sons	-	28-Nov-79	-	Ground/Reference Elevation are TOC
W16	-	-	-	-	-	-	-	-	-	-	-	-
W420	4	-	-	Black Welded	Johnson Wirewound	Neat Cement and Bentonite	4	Bergerson-Caswell Inc.	Rotary	12-Oct-87	-	-
W423	4	-	-	Black Steel	304 Johnson Stains. Steel	Neat Cement	4	E. H. Renner & Sons	Cable Tool	25-Nov-87	-	Ground/Reference Elevation are TOC
W425	4	-	-	Black Steel	Johnson 304 Stainless	Neat Cement	4	E. H. Renner & Sons	Cable Tool	07-Dec-87	-	-Ground/Reference Elevation are TOC 11/05 -Variable casing
W427	4	-	-	Black Steel	Johnson 304 Stainless	Neat Cement	4	E. H. Renner & Sons	Cable Tool	20-Nov-87	-	-Ground/Reference Elevation are TOC -Variable casing diameter
W101	4	-	-	-	-	-	4	E. H. Renner	-	26-Dec-78	-	Ground/Reference Elevation are TOC
W120	4	-	-	-	-	-	4	E.H. Renner & Sons	-	12-Jul-79	-	Ground/Reference Elevation are TOC 11/05
W121	4	-	-	Johnson SS	-	-	4	E.H. Renner & Sons	Cable Tool	15-Jul-79	-	Ground/Reference Elevation are TOC
W123	4	-	-	-	-	-	4	E.H. Renner & Sons	-	07-Aug-79	01-Oct-10	Ground/Reference Elevation are TOC
W130	4	-	-	-	-	-	4	E.H. Renner & Sons	-	25-Sep-79	-	Ground/Reference Elevation are TOC
W131	4	-	-	-	-	-	4	E.H. Renner & Sons	-	05-Oct-79	-	Ground/Reference Elevation are TOC

Notes:
TOC=Top of Casing
-=No Data Available
PZ=Piezometer
IR=Irrigation

MW=Monitoring Well
OSTP=St. Peter
OPVL=Platteville
PCJ=Prairie du Chien-Jordan

SLP=St. Louis Park Well
H=Hopkins Well
ED=Edina Well

Table 3
Well Construction Details; St. Louis Park Edina, MN

Well Name	Casing Diameter (in)	Pack Material	Sandpack Top	Casing Material	Screen Material	Grout	Well Diameter (in)	Contractor	Drill Method	StartDate	Abandon Date	Notes
W132	4	-	-	-	-	-	4	E.H. Renner & Sons	-	29-Oct-79	-	Ground/Reference Elevation are TOC
W143	4	-	-	-	-	-	4	-	-	03-Feb-89	-	-Ground/Reference Elevation are TOC -Open hole assumed
W18	4	-	-	-	-	-	4	E.H. Renner & Sons	-	07-Jul-78	-	GW contamination by coal tar derivatives
W20	4	-	-	-	-	-	4	E.H. Renner & Sons	-	27-Nov-78	-	Ground/Reference Elevation are TOC
W27	4	-	-	-	-	-	4	E.H. Renner & Sons	-	03-Jul-53	-	Ground/Reference Elevation are TOC
W421	6	-	-	Black Welded	no screen	Neat Cement and Bentonite	4	Bergerson-Caswell Inc.	Rotary	12-Oct-87	-	-Ground/Reference Elevation are TOC 11/05 -Open hole 67-84'
W424	4	-	-	Black Steel	no screen	Neat Cement	4	E. H. Renner & Sons	Cable Tool	20-Nov-87	-	-Ground/Reference Elevation are TOC -Open hole 100-110'
W426	4	-	-	Black Steel	no screen	Neat Cement	4	E. H. Renner & Sons	Cable Tool	07-Dec-87	-	-Ground/Reference Elevation are TOC 11/05 -open hole 99.5-116'
W428	4	-	-	Black Steel	no screen	Neat Cement	4	E. H. Renner & Sons	Cable Tool	17-Nov-87	-	-Ground/Reference Elevation are TOC -Open hole 98-109
W431	4	-	-	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite or Bentonite Slurry	4	E.H. Renner & Sons	Cable Tool	12-Nov-90	-	Ground/Reference Elevation are TOC
W432	4	-	-	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite or Bentonite Slurry	4	E.H. Renner & Sons	Cable Tool	01-Nov-90	19-Nov-10	Ground/Reference Elevation are TOC
W433	6	-	-	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite	6	E.H. Renner & Sons	Mud Rotary	05-Nov-90	-	-Ground/Reference Elevation are TOC -Open hole 96-112'
W434	6	Red Flint Sand	92	Schedule 40 Black Steel	Stainless Steel	Cement Bentonite	6	E.H. Renner & Sons	Mud Rotary	23-Apr-91	-	Ground/Reference Elevation are TOC 11/05
W437	4	-	-	-	Black Welded	Portland	4	Mark J. Traut Wells, Inc.	Rotary	30-Dec-91	-	-Ground/Reference Elevation are TOC -Open Hole 94-104.2'
W438	4	-	-	-	Black Welded	Portland	4	Mark J. Traut Wells, Inc.	Rotary	02-Jan-92	-	Ground/Reference Elevation are TOC
W122	4	-	-	-	-	-	4	E.H. Renner & Sons	-	06-Aug-79	-	Ground/Reference Elevation are TOC
W129	4	-	-	-	-	-	4	E.H. Renner & Sons	-	23-Oct-79	-	Ground/Reference Elevation are TOC
W133	4	-	-	Johnson SS	-	-	4	E.H. Renner & Sons	-	13-Nov-79	-	Ground/Reference Elevation are TOC
W33	4	-	-	-	-	-	4	Max Renner	-	01-Jun-53	01-Oct-04	Ground/Reference Elevation are TOC
W33R	-	-	-	-	-	-	4	-	-	-	-	-

Notes:
TOC=Top of Casing
-=No Data Available
PZ=Piezometer
IR=Irrigation

MW=Monitoring Well
OSTP=St. Peter
OPVL=Platteville
PCJ=Prairie du Chien-Jordan

SLP=St. Louis Park Well
H=Hopkins Well
ED=Edina Well

Table 3
Well Construction Details; St. Louis Park Edina, MN

Well Name	Casing Diameter (in)	Pack Material	Sandpack Top	Casing Material	Screen Material	Grout	Well Diameter (in)	Contractor	Drill Method	StartDate	Abandon Date	Notes
W410	4	-	-	Black Welded	Johnson Wire Wound	Neat Cement/Bentonite	4.008	Bergerson-Caswell Inc.	Rotary Cable tool	12-Oct-87	-	-Ground/Reference Elevation are TOC -Hole diam/casing varies w/ depth
W411	4	-	-	Black Welded	-	Neat Cement	4	Layne-Western Co. INC	Rotary	27-Oct-87	-	-Ground/Reference Elevation are TOC -Various casing/hole diameters
W412	4	-	-	Black Welded	Johnson	Neat Cement	4	Layne-Western Co INC	Rotary	20-Nov-87	-	Ground/Reference Elevation are TOC
E13	16	-	-	-	-	-	16	Keys Well Drilling Co.	-	01-May-64	-	-Assumed Well diameter, actual may be smaller -CWI Remarks: "CASING:024 TO 0109;016 TO 0429."
E15	24	-	-	-	-	-	24	Bergerson-Caswell	-	15-Jun-02	-	Assumed Well diameter, actual may be smaller
E2	12	-	-	-	-	-	12	Keys Well Drilling Co.	-	01-Apr-07	-	-CWI Casing 20''-53',16''-260', 12''-266'
E7	16	-	-	-	-	-	16	Keys Well Co.	-	03-May-55	-	-Assumed Well diameter, actual may be smaller -1/25/11 Out of service until VOC Treatment -148' pipe 24", 350' pipe 16"
EDTW1	6	-	-	steel	-	neat cement	6	Mark J Traut Wells, Inc.	-	07-Dec-06	-	Assumed Well diameter, actual may be smaller
H6	30	-	-	welded	-	neat cement	24	Bergerson-Caswell Inc.	Cable Tool	30-Sep-77	-	-Assumed Well diameter, actual may be smaller -30" to 132', 24" to 354'
SLP16	24	-	-	-	-	yes	24	Tri-State Drilling Co.	-	31-Jul-73	-	-Open Hole assumed -24" liner pipe 425 ft, 30" outer casing 310 ft
SLP4	18	-	-	-	-	Neat cement	18	Layne-Western Co.	-	01-Jan-46	-	-Assumed Well diameter, actual may be smaller -Open Hole assumed, GAC
SLP5	20	-	-	-	-	Neat cement	20	Layne Minnesota Co.	-	01-Jan-47	-	-Assumed Well diameter, actual may be smaller -Open Hole assumed -24" pipe to 115' then 20" to 305'
SLP6	20	-	-	-	-	Neat cement	20	Layne-Western Co.	-	01-Jan-48	-	-Open Hole assumed -CWI remarks: "CASING:024 TO 0108;020 TO 0303."
W112	16	-	-	-	-	-	16	McCarthy	-	28-May-32	Abandonded, date not provided	-Assumed Well diameter, actual may be smaller -Open Hole assumed, have casing to 293 -Formerly AKA SLP01
W118	-	-	-	-	-	-	-	-	-	-	-	-
W119	16	-	-	-	-	-	16	E. H. Renner	-	01-Jun-35	-	-Assumed Well diameter, actual may be smaller -Open Hole assumed, have casing to 257
W23	10	-	-	-	-	-	10	McCarthy	-	-	-	Ground/Reference Elevation are TOC
W29	4	-	-	-	-	-	4	E.H. Renner & Sons	-	12-Apr-63	-	-Ground/Reference Elevation are TOC -Private well
W401	4	-	-	-	-	-	4	-	-	-	-	Ground/Reference Elevation are TOC
W403	4	-	-	steel	-	-	4	-	Rotary	01-Mar-88	-	Ground/Reference Elevation are TOC
Edina CC#3	-	-	-	-	-	-	12	-	-	-	-	-
Edina CC #2	-	-	-	-	-	-	12	-	-	-	-	-

Notes:
TOC=Top of Casing
-=No Data Available
PZ=Piezometer
IR=Irrigation

MW=Monitoring Well
OSTP=St. Peter
OPVL=Platteville
PCJ=Prairie du Chien-Jordan

SLP=St. Louis Park Well
H=Hopkins Well
ED=Edina Well

Table 4
Monitoring Well Groundwater Analytical Results - Drift Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

									???																	
					Well Name:	P8	P9	P58	P109	P109	P109	P109	P109	P112	P112	P112	P112	P112	P112	P112	P112	P304	P305	P307	P307-DUP	P307
					CWI Name:																					
					MN Unique Well No.:	00216117	00216118	00227944	00216194	00216194	00216194	00216194	00216194	00216166	00216166	00216166	00216166	00216166	00216166	00216166	00216166	00439765	00439765	00462926	00462926	00462926
					Aquifer:	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift
					STS/AECOM Sample ID:	P 8	P 9	P 58							P112	P112						P304	P305			
					MDH Sample No:	200514577	200514581	200514580		200611310	200710977		13E0103-03	200508514	200514578	200514579	200611305	200710976		200911609	13E0169-06	200514574	200514575			200611306
					Sample Date:	6/7/2005	6/8/2005	6/7/2005	4/26/2005	5/8/2006	5/9/2007	4/28/2008	5/1/2013	4/25/2005	6/7/2005	6/7/2005	5/8/2006	5/9/2007	4/28/2008	5/5/2009	5/2/2013	6/6/2005	6/6/2005	4/25/2005	4/25/2005	5/8/2006
					Notes:	Low Flow Sample	Low Flow Sample	Low Flow Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	Collected by AECOM	PAH Split Sample	Low Flow Sample	Low Flow Sample, Duplicate	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Low Flow Sample	Low Flow Sample, Duplicate	PAH Split Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards								Pace Sample No.: P112-042908							Pace Sample No.: P112-042808							
Benzene	ug/L	2	HRL	5	MCL	**0.5**	<0.2	<0.2	**13.0**	<1.0	**0.7**	**0.623 J**	<1.0	<0.2	**0.3**	**0.4**	<1.0	**0.3**	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	**3.7**
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	**0.1**	<1.0	<0.1	<5.00	<1.0	<0.1	<0.1	<0.1	<1.0	<0.1	<5.00	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	**<1.0**	<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.710 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<0.2	**0.7**	<1.0	**0.20 J**	<1.00	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	**0.4**	<1.0	<0.2	<1.00	<1.0	<0.2	**0.3**	**0.3**	<1.0	**0.3**	<1.00	**0.4**	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0
1,1-Dichloroethene	ug/L	200	HBV	7	MCL	<0.5	<0.5	<0.5	**14.0**	<1.0	**0.21 J**	<1.00	<1.0	<0.5	**0.6**	**0.9**	**0.8 J**	**0.6**	<1.00	**0.7**	<1.0	<0.5	<0.5	<0.2	<0.2	**0.97 J**
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**98.0**	<0.2	<0.2	**3800.0**	**0.7 J**	**0.8**	<1.00	<1.0	**0.7**	**2.6**	**3.5**	**3.3**	**2.7**	**1.94**	**2.5**	<1.0	<0.2	<0.2	**0.6**	<0.2	**340 RC**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**23**	<0.1	<0.1	**61**	<1.0	**0.088 J**	<1.00 J	<1.0	<0.1	<0.1	<0.1	<1.0	**0.1**	<1.00 J	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	**18**
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	**1.1**	<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<0.5	**0.7**	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	**2.8**
Isopropylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<2.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<1.0
Methyl ethyl ketone	ug/L	4000	HRL	--		<10	<10	<10	<10	<10	<10	<5.00	<10	<10	<10	<10	<10	<10	<5.00	<10	<10	<10	<10	<10	<10	<10
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	<1.0	**1.0**	<1.0	<1.0	8.5
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	**1000.0**	<1.0	<0.2	<1.00	<1.0	**0.4**	<0.2	<0.2	<1.0	**0.2**	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	**0.3**	**130 RC**
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<1.0	<10	<5.00	<1.0	<10	<10	<10	<1.0	<10	<5.00	<10	<10	<10	<10	<10	<10	<1.0
Toluene	ug/L	200	HBV	1000	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.2	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.2	<1.00	<0.2	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	2	MCL	**23.0**	<0.1	<0.1	**690.0**	<1.0	**0.1**	<1.00	<1.0	**0.2**	**0.3**	**0.4**	<1.0	**0.5**	<1.00	**0.5**	<1.0	**0.1**	<0.1	**0.3**	<0.1	**130 RC**
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	**6.2**	<0.2	<0.2	44.0	1.5	1.3	1.07	1.8	<0.2	**3.5**	**4.7**	**2.7**	**1.5**	**2.07**	**3.70**	**1.8**	<0.2	<0.2	<0.2	<0.2	<1.0
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<0.3	**0.6**	<1.0	<0.3	<2.00	<1.0	<0.3	<0.3	<0.3	<1.0	<0.3	<2.00	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3	<1.0
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<0.5	**0.8**	<2.0	<0.5	<3.00	<2.0	<0.5	<0.5	<0.5	<2.0	<0.5	<3.00	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<2.0

Notes:

Bold = compound detected above reporting limit

0.5	- concentration exceeds MN drinking water criteria
18	- concentration exceeds Federal drinking water criteria
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	- Results inconsistent with other results (outlier)

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QB - Analyte found in the associated method blank and in the sample
QR - Result estimated
RC - Report level was changed due to sample dilution
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by MDH
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results - Drift Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

											???												???			
Well Name:						P307	P307-DUP	P307	P307	P307	P308	P308	P308	P308	P308	P308	P309	P309	P309	P309	P309	P309	P310	P310	P310	P310
CWI Name:																										
MN Unique Well No.:						00462926	00462926	00462926	00462926	00462926	00462927	00462927	00462927	00462927	00462927	00462927	00462928	00462928	00462928	00462928	00462928	00462928	00462929	00462929	00462929	00462929
Aquifer:						Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift
STS/AECOM Sample ID:																										
MDH Sample No:						200710972	200710998		200911616	13E0012-12		200611313	200710978		200911615	13E0012-07		200610311	200710962		200911612	13E0012-06		200611308	200710980	
Sample Date:						5/9/2007	5/9/2007	4/28/2008	5/5/2009	4/30/2013	4/25/2005	5/8/2006	5/9/2007	4/28/2008	5/5/2009	4/30/2013	4/25/2005	5/2/2006	5/8/2007	4/29/2008	5/5/2009	4/30/2013	4/25/2005	5/8/2006	5/10/2007	4/28/2008
Notes:						PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Sampled by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards				Pace Sample No.: P307-042808						Pace Sample No.: P308-042808						Pace Sample No.: P309-042908						Pace Sample No.: P310-042808
Benzene	ug/L	2	HRL	5	MCL	34.0	30.0	22.6	28.0	31 D	13.0	<1.0	0.5	<1.00	0.16 J	<1.0	1.3	2.6	5.5	<5.00	3.0	37 D	0.6	3.9	1.8	0.510 J
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Chloroethane	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<5.00	<0.1	<10	<0.1	<1.0	<0.1	<5.00	<0.1	<1.0	<0.1	0.2	<0.1	<25.00	<1.00	<10	<0.1	<1.0	0.078 J	<5.00
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.00	<1.0	<10	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<5.00	<10.00	<10	<1.0	<1.0	<1.0	<1.00
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<1.00	<0.2	<10	0.3	<1.0	<0.2	<1.00	<0.2	<1.0	<0.2	<1.0	<0.2	<5.00	<2.00	<10	0.2	<1.0	0.2	<1.00
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<1.00	<0.2	<10	0.5	<1.0	<0.2	<1.00	<0.2	<1.0	<0.2	<1.0	<0.2	<5.00	<2.00	<10	<0.2	<1.0	<0.2	<1.00
1,1-Dichloroethene	ug/L	200	HBV	7	MCL	1.3	5.0	<1.00	8.7	<10	12	<1.0	<0.5	<1.00	<0.5	<1.0	<0.2	<1.0	<0.5	<5.00	<2.00	<10	<0.2	3.4	0.9	0.741 J
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	1600 RC	1400 RC	163.0	560 RC	2600 D	2100.0	3.5	29	7.68	17	<1.0	<0.2	23	130 RC	207.0	220 QB	2900 D	0.5	810 RC	770 RC	358.0
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	330 RC	330 RC	171 J	380 RC	240 D	55	<1.0	6.0	1.51 J	0.5	<1.0	1.2	6.6	6.1	5.22 J	<1.00	45 D	0.1	15	11	4.68 J
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.00	<1.0	<10	<0.1	<1.0	<1.0	<1.00	<1.0	<1.0	<0.1	<1.0	<1.0	<5.00	<10.00	<10	<0.1	<1.0	<1.0	<1.00
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Ethylbenzene	ug/L	50	HBV	700	MCL	12	11	6.69	10	<10	1.8	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	0.3 J	0.40 J	<5.00	<5.00	<10	<0.5	<1.0	0.16 J	<1.00
Isopropylbenzene	ug/L	--		--		2.4	2.2	<1.00	1.8	<10	1	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<1.00	<0.5	<20	<0.5	<1.0	<0.5	<1.00	<0.5	<2.0	<0.5	<1.0	<0.5	<5.00	<5.00	<20	<0.5	<1.0	<0.5	<1.00
Methyl ethyl ketone	ug/L	4000	HRL	--		<10	<10	<5.00	<10	<100	<10	<10	<10	<5.00	<10	<10	<10	<10	<10	<25.00	<100.00	<100	<10	<10	<10	<5.00
Naphthalene	ug/L	300	HRL	--		7.5	4.3	1.73 J	<1.0	<10	<1.0	1.3	14	1.53 J	2.7	<1.0	<1.0	32	18 RC	4.03 J	<10.00	<10	<1.0	1.4	4.5 QR	1.42 J
n-Propylbenzene	ug/L	--		--		0.6	0.5	<1.00	0.4 J	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	940 RC	830 RC	51.5	280 RC	61 D	560.0	5.4	39.0	4.59	3.1	<1.0	<0.2	94.0	430 RC	789.0	13.0	2900 D	<0.2	9.7	180 RC	55.9
Tetrahydrofuran	ug/L	--		--		<10	<10	<5.00	<10	<100	<10	<1.0	<10	<5.00	<10	<10	<10	<1.0	<10	<25.00	<100.00	<100	<10	<1.0	<10	<5.00
Toluene	ug/L	200	HBV	1000	MCL	0.6	0.50 J	<1.00	0.5	<10	<0.5	<1.0	0.13 J	<1.00	0.1 J	<1.0	<0.5	<1.0	0.23 J	<5.00	<5.00	<10	<0.5	<1.0	0.27 J	<1.00
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<1.00	<0.2	<10	<0.2	<1.0	<0.2	<1.00	<0.2	<1.0	<0.2	<1.0	<0.2	<5.00	<2.00	<10	<0.2	<1.0	<0.2	<1.00
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	<0.2	<1.00	<0.2	<10	<0.2	<0.2	<0.2	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<5.00	<2.00	<10	<0.2	<0.2	<0.2	<1.00
Trichloroethene (TCE) **	ug/L	0.4	HRL	2	MCL	970 RC	870 RC	62.7	410 RC	150 D	420.0	6.1	68.0	9.22	12	<1.0	<0.1	69.0	210 RC	286.0	12.0	2200 D	<0.1	15.0	130 RC	55.7
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	0.32 J	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<1.00	<0.5	<10	<0.5	<1.0	<0.5	<1.00	<0.5	<1.0	<0.5	<1.0	<0.5	<5.00	<5.00	<10	<0.5	<1.0	<0.5	<1.00
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	61.0	120 RC	51.7	99 RC	110 D	130.0	<1.0	0.8	<1.00	0.1 J	<1.0	1.5	4.0	<0.2	4.55 J	14.0	170 D	2.1	50.0	170 RC	59.8
o-Xylene	ug/L	300	HRL	--		<0.2	0.6	<1.00	0.7	<10	<0.2	<1.0	<0.2	<1.00	<0.2	<1.0	<0.2	0.13 J	<0.2	<5.00	<2.00	<10	<0.2	<1.0	<0.2	<1.00
p&m-Xylene	ug/L	300	HRL	--		<0.3	0.7	<2.00	1.1	<10	0.8	<1.0	<0.3	<2.00	<0.3	<1.0	<0.3	0.4	<0.3	<10.00	<3.00	<10	<0.3	<1.0	0.12 J	<2.00
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	1.3	<3.00	1.8	<20	1.0	<2.0	<0.5	<3.00	<0.5	<2.0	<0.5	0.53	<0.5	<15.00	<5.00	<20	<0.5	<2.0	0.32	<3.00

Notes:

Bold = compound detected above reporting limit

0.5 - concentration exceeds MN drinking water criteria

18 - concentration exceeds Federal drinking water criteria

135 - increasing trend in concentrations

37 - decreasing trend in concentrations

??? - Results inconsistent with other results (outlier)

D - Report Limit changed due to sample dilution

J - The analyte positively identified, below the report level, estimated

QB - Analyte found in the associated method blank and in the sample

QR - Result estimated

RC - Report level was changed due to sample dilution

HBV - Health Based Values derived by Minnesota Department of Health

HRL - Health Risk Level derived and promulgated in rule by MDH

MCL - Maximum Contaminant Level (USEPA)

** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results - Drift Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

									???													???				
					Well Name:	P310	P310	P310-DUP	P312	P312	P312	P312	P312	P312	W2	W9	W10	W15	W16	W17	W22	W117	W117	W117	W117	W117
					CWI Name:																					
					MN Unique Well No.:	00462929	00462929	00462929	00462932	00462932	00462932	00462932	00462932	00462932	00216031	00216037	00216038	,00216043	00216044	00216044	00200993	00160031	00160031	00160031	00160031	00160031
					Aquifer:	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift
					STS/AECOM Sample ID:										W-2	W9	W10	W15	W16	W17	W22					
					MDH Sample No:	200911611	13E0012-01	13E0012-03		200610313	200710986		200911623	13E0012-09	200514049	200514042	200514045	200514030	200514043	200514047	200514041		200611311	200710973		200911604
					Sample Date:	5/5/2009	4/30/2013	4/30/2013	4/26/2005	5/2/2006	5/7/2007	4/29/2008	5/7/2009	4/30/2013	6/3/2005	6/3/2005	6/3/2005	6/2/2005	6/3/2005	6/3/2005	6/3/2005	4/26/2005	5/8/2006	5/9/2007	4/28/2008	5/5/2009
					Notes:	PAH Split Sample	Collected by AECOM	Collected by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample, Duplicate	Discrete Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards								Pace Sample No.: P312-042908													Pace Sample No.: W117-042808	
Benzene	ug/L	2	HRL	5	MCL	<2.00	< 10	< 10	<0.2	**7.8**	**10**	**7.05**	**15**	**6.4**	<0.2	**14.0**	<0.2	<0.2	<0.2	<0.2	**0.8**	**8.2**	1.2	1.6	0.623 J	1.2
n-Butylbenzene	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Chlorodibromoethane	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Chloroethane	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	**0.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Chloroform	ug/L	30	HRL	--		<1.00	< 10	< 10	**0.2**	<0.1	<0.1	<25.00	<1.00	<1.0	<0.1	**0.1**	<0.1	**0.6**	<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<5.00	<0.1
Chloromethane	ug/L	--		--		<10.00	< 10	< 10	**<1.0**	<1.0	<1.0	<5.00	<10.00	<1.0	<1.0	**<1.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0
1,1-Dichloroethane	ug/L	--		--		<2.00	< 10	< 10	<0.2	<0.2	<0.2	<5.00	<2.00	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	**0.13 J**	<1.00	**0.1 J**
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<2.00	< 10	< 10	<0.2	<0.2	**0.3**	<5.00	<2.00	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	**0.2**	<1.00	**0.2**
1,1-Dichloroethene	ug/L	200	HBV	7	MCL	<2.00	< 10	< 10	<0.2	**5.1**	**6.2**	**3.72 J**	**4 J**	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.3**	<1.0	<0.5	<1.00	<0.5
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**850 QB**	**840 D**	**860 D**	**1.9**	**1500 RC**	**46**	**810.0**	**690 QB**	**5.9**	**0.2**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**330.0**	1.5	21	<1.00	0.3
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**10**	< 10	< 10	<0.1	**60**	**60 RC**	**32.0 J**	**59**	**15**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**13**	**1.7**	**5.9**	**1.51 J**	**3.0**
Dichlorodifluoromethane	ug/L	700	HBV	--		<10.00	< 10	< 10	<0.1	<1.0	<1.0	<5.00	<10.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.1	<1.0	<1.0	<1.00	<1.0
Dichlorofluoromethane	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	**16**	<0.5	<0.5	<0.5	<0.5	**0.6**	**1.6**	<1.0	<0.5	<1.00	<0.5
Isopropylbenzene	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	**0.50 J**	<5.00	<5.00	<1.0	<0.5	**2.9**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
p-Isopropyltoluene	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<5.00	< 20	< 20	<0.5	<0.5	<0.5	<5.00	<5.00	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Methyl ethyl ketone	ug/L	4000	HRL	--		<100.00	< 100	< 100	<10	<10	**59**	<5.00	<100.00	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<5.00	<10
Naphthalene	ug/L	300	HRL	--		<10.00	< 10	< 10	<1.0	**7.2**	**5.1**	<25.00	<10.00	<1.0	<1.0	**660.0**	<1.0	<1.0	<1.0	<1.0	**2.7**	**4**	<1.0	<1.0	<5.00	<1.0
n-Propylbenzene	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	**0.8**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Styrene	ug/L	--		100	MCL	<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	**0.9**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<2.00	< 10	< 10	**3.9**	**7.8**	**1.4**	<5.00	<2.00	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**11.0**	<1.0	**0.080 J**	<1.00	<0.2
Tetrahydrofuran	ug/L	--		--		<100.00	< 100	< 100	<10	<10	<10	<25.00	<100.00	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	<10	<5.00	<10
Toluene	ug/L	200	HBV	1000	MCL	<5.00	< 10	< 10	<0.5	<0.2	**0.22 J**	<5.00	<5.00	<1.0	<0.5	**1.2**	<0.5	<0.5	**1.1**	**1.1**	**4.3**	<0.5	<1.0	<0.2	<1.00	<0.2
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<2.00	< 10	< 10	<0.2	<0.2	<0.2	<5.00	<2.00	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<0.2
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<2.00	< 10	< 10	<0.2	<0.2	<0.2	<5.00	<2.00	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	2	MCL	**2.0**	< 10	< 10	**2.5**	**3.5**	**1.4**	<5.00	<1.00	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**5.3**	<1.0	**0.4**	<1.00	**0.2**
1,2,4-Trimethylbenzene	ug/L	--		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	**14**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<5.00	< 10	< 10	<0.5	<0.5	<0.5	<5.00	<5.00	<1.0	<0.5	**2.0**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	**80**	< 10	< 10	<0.2	**120.0**	**190 RC**	**153.0**	**270.0**	**29**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**160.0**	1.2	1.7	<1.00	0.5
o-Xylene	ug/L	300	HRL	--		<2.00	< 10	< 10	<0.2	<0.2	<0.2	<5.00	<2.00	<1.0	<0.2	**17**	<0.2	<0.2	<0.2	<0.2	**0.4**	**0.5**	<1.0	<0.2	<1.00	<0.2
p&m-Xylene	ug/L	300	HRL	--		<3.00	< 10	< 10	<0.3	<0.3	<0.3	<10.00	<3.00	<1.0	<0.3	**11**	<0.3	<0.3	<0.3	<0.3	**0.3**	**0.8**	<1.0	<0.3	<2.00	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<5.00	<20	<20	<0.5	<0.5	<0.5	<15.00	<5.00	<2.0	<0.5	**28**	<0.5	<0.5	<0.5	<0.5	**0.7**	**1.3**	<2.0	<0.5	<3.00	<0.5

Notes:

Bold = compound detected above reporting limit

0.5 - concentration exceeds MN drinking water criteria

18 - concentration exceeds Federal drinking water criteria

135 - increasing trend in concentrations

37 - decreasing trend in concentrations

??? - Results inconsistent with other results (outlier)

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QB - Analyte found in the associated method blank and in the sample
QR - Result estimated
RC - Report level was changed due to sample dilution
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by MDH
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results- Drift Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

											???	???														???
					Well Name:	W117-DUP	W117	W128	W128	W128	W136	W136-DUP	W136	W136	W136	W136	W136	W420	W420	W420	W420	W420	W420	W420	W420-DUP (DUP-5)	W422
					CWI Name:													W420 - U.S.G.S. WELL NO. 100								
					MN Unique Well No.:	00160031	00160031	00165583	00165583	00165583	00165591	00165591	00165591	00165591	00165591	00165591	00165591	00434405	00434045	00434045	00434045	00434045	00434045	00434045	00434045	00434043
					Aquifer:	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift
					STS/AECOM Sample ID:													SLP 420								
					MDH Sample No:	200911605	13D1907-06	200710966		200911619			200610312	200710988		200911622	13D1907-04	200432995		200610295	200710990		200904988	13E0169-05	13EO169-03	
					Sample Date:	5/5/2009	4/29/2013	5/8/2007	4/29/2008	5/7/2009	4/26/2005	4/26/2005	5/2/2006	5/7/2007	4/29/2008	5/7/2009	4/29/2013	12/9/2004	5/2/2005	5/2/2006	5/7/2007	4/28/2008	3/12/2009	5/2/2013	5/2/2013	4/26/2005
					Notes:	PAH Split Sample	Collected by AECOM	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Spigot Water Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Sampled by AECOM	Sampled by AECOM	PAH Split Sample, questionable sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards					Pace Sample No.: W128-042908						Pace Sample No.: W136-042908							Pace Sample No.: W420-042808				
Benzene	ug/L	2	HRL	5	MCL	1.1	0.99	0.12 J	<1.00	<0.2	16.0	18.0	<0.2	<0.2	<1.00	<0.2	< 0.20	84.0	100.0	80.0	<0.2	63.4	1.3	67 D	65 D	55.0
n-Butylbenzene	ug/L	--		--		<0.5	<0.50	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	<0.5	<0.5	<0.5	<0.5	<20.0	<0.5	<1.0	<1.0	1.9
Chlorodibromoethane	ug/L	--		--		<0.5	<0.50	<0.5	<1.00	<0.5	0.5	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	<0.5	<0.5	<0.5	<0.5	<20.0	<0.5	<1.0	<1.0	<0.5
Chloroethane	ug/L	--		--		<0.5	< 0.50	<0.5	<1.00	<0.5	2.3	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	<0.5	0.5	0.5 J	<0.5	<20.0	<0.5	<1.0	<1.0	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	< 0.10	<0.1	<5.00	0.2	<0.1	<0.1	<0.1	<0.1	<5.00	<0.1	< 0.10	<0.1	0.1	<0.1	<0.1	<100.0	<0.1	<1.0	<1.0	<0.1
Chloromethane	ug/L	--		--		<1.0	< 1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		0.1 J	< 0.20	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	< 0.20	0.5	<0.2	0.5	0.6	<20.0	1.2	<1.0	<1.0	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	0.2	< 0.20	<0.2	<1.00	0.2	0.4	<0.2	<0.2	<0.2	<1.00	<0.2	< 0.20	<0.2	<0.2	<0.2	<0.2	<20.0	<0.2	<1.0	<1.0	<0.2
1,1-Dichloroethene	ug/L	200	HBV	7	MCL	<0.5	< 0.50	<0.5	<1.00	0.4 J	2.3	<0.2	<0.5	<0.5	<1.00	<0.5	< 0.50	<0.5	0.4	0.3 J	0.8	<20.0	0.7	<1.0	<1.0	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	0.3	14	0.3	9.43	16	630.0	590.0	<0.2	1.8	1.12	0.4	< 0.20	21	28	45	150 RC	120	52	9.4	9.5	4.7
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	3.1	4.5	<0.1	<1.00 J	0.8	74	76	<0.1	<0.1	<1.00 U	<0.1	< 0.10	18	23	23	39	19.1 J	2.5	<1.0	<1.0	1.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	< 1.0	<1.0	<1.00	0.6 J	<0.1	<0.1	<1.0	<1.0	<1.00	<1.0	< 1.0	<1.0	<0.1	<1.0	5.1 QR	<20.0	2.0	2.1	4.5	<0.1
Dichlorofluoromethane	ug/L	--		--		<0.5	< 0.50	0.45 J	0.945 J	2.2	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	<0.5	<0.5	<0.5	<0.5	<20.0	4.0	<1.0	<1.0	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	< 0.50	<0.5	<1.00	<0.5	24	24	<0.5	<0.5	<1.00	<0.5	< 0.50	98	51	90 RC	<0.5	66.4	<0.5	<1.0	<1.0	110
Isopropylbenzene	ug/L	--		--		<0.5	< 0.50	<0.5	<1.00	<0.5	2.6	2.8	<0.5	<0.5	<1.00	<0.5	< 0.50	9.9	9.6	8.8	<0.5	<20.0	<0.5	8.5	8.3	12
p-Isopropyltoluene	ug/L	--		--		<0.5	< 0.50	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	2.2	<0.5	<0.5	<0.5	<20.0	<0.5	1.8	1.8	1.2
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	< 0.50	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	<0.5	<0.5	<0.5	<0.5	<20.0	<0.5	<2.0	<2.0	<0.5
Methyl ethyl ketone	ug/L	4000	HRL	--		<10	<10	<10	<1.00	<10	<10	<10	<10	<10	<5.00	<10	<10	<10	<10	<10	<10	<100.0	<10	<10	<10	<10
Naphthalene	ug/L	300	HRL	--		<1.0	< 1.0	<1.0	<5.00	<1.0	7.5	3.5	1.4	15	<5.00	<1.0	<1.0	2400.0	3100.0	3200.0	2500 RC	1530 J	<1.0	3200 D	3000 D	1100.0
n-Propylbenzene	ug/L	--		--		<0.5	< 0.50	<0.5	<1.00	<0.5	0.8	0.9	<0.5	<0.5	<1.00	<0.5	< 0.50	3.8	2.8	2.7	2.5	<20.0	<0.5	2.5	2.4	8.9
Styrene	ug/L	--		100	MCL	<0.5	< 0.50	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	1.9	<0.5	<0.5	<0.5	<20.0	<0.5	<1.0	<1.0	3.6
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	< 0.20	0.3	<1.00	33	2800.0	2700.0	1.2	14	0.615 J	0.3	<0.20	<0.2	<0.2	<0.2	0.3	<20.0	<0.2	<1.0	<1.0	1.6
Tetrahydrofuran	ug/L	--		--		<10	< 10	<10	<5.00	<10	<10	<10	<10	<10	<5.00	<10	< 10	<10	<10	<10	<10	<100.0	<10	<1.0	<1.0	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.2	< 0.20	<0.2	<1.00	<0.2	0.8	0.9	<0.2	<0.2	<1.00	<0.2	0.27	4.4	3.8	2.7	2.7	<20.0	<0.2	3.7	3.8	5.4
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	< 0.20	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	< 0.20	<0.2	<0.2	<0.2	<0.2	<20.0	<0.2	<1.0	<1.0	<0.2
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	< 0.20	<0.2	<1.00	2.0	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	< 0.20	<0.2	<0.2	<0.2	<0.2	<20.0	<0.2	<1.0	<1.0	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	2	MCL	0.2	0.54	0.3	0.984 J	20.0	1900.0	1800.0	0.5	9.7	0.599 J	0.1	<0.10	2.6	1.7	0.3	0.5	<20.0	8.6	<1.0	<1.0	0.9
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.50	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	< 0.50	35	46	<0.5	35	25.9	<0.5	49	49	84
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.50	<0.5	<1.00	<0.5	0.6	0.6	<0.5	<0.5	<1.00	<0.5	< 0.50	15	16	11	12	<20.0	<0.5	6.9	6.8	13
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	0.6	1.7	<0.2	<1.00	1.1	62.0	63.0	<0.2	<0.2	<1.00	<0.2	< 0.20	8.7	12.0	20.0	50 RC	46.9	9.4	18	19	1.9
o-Xylene	ug/L	300	HRL	--		<0.2	<0.20	<0.2	<1.00	<0.2	1.1	1.2	<0.2	<0.2	<1.00	<0.2	< 0.20	51	60	50 RC	40 RC	35.4	<0.2	53	58	88
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.30	<0.3	<2.00	<0.3	1.4	1.4	<0.3	<0.3	<2.00	<0.3	<0.30	98	100	90 RC	70 RC	65.8	<0.3	76	81	97
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.50	<0.5	<3.00	<0.5	2.5	2.6	<0.5	<0.5	<3.00	<0.5	<0.5	149	160	140 RC	110 RC	101.2	<0.5	129	139	185

Notes:

Bold = compound detected above reporting limit

0.5 - concentration exceeds MN drinking water criteria

18 - concentration exceeds Federal drinking water criteria

135 - increasing trend in concentrations

37 - decreasing trend in concentrations

??? - Results inconsistent with other results (outlier)

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QB - Analyte found in the associated method blank and in the sample
QR - Result estimated
RC - Report level was changed due to sample dilution
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by MDH
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results - Drift Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						W422	W422	W422	W422	W422	W423	W425	W427	W427	W427	W427	W427-DUP	W427	W427	W439	W439	W439	W439	W439	W439	W439
CWI Name:																										
MN Unique Well No.:						00434043	00434043	00434043	00434043	00434043	00439813	00439813	00439811	00439811	00439811	00439811	00439811	00439811	00439811	00538134	00538134	00538134	00538134	00538134	00538134	00538134
Aquifer:						Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift	Drift
STS/AECOM Sample ID:											W423	W425								SLP 439						
MDH Sample No:						200610315	200710985		200911617	13E0169-07	200514029	200514036		200611309	200710979			200911610	13E0103-10	200432994		200611304	200710975		200911608	13E0169-04
Sample Date:						5/2/2006	5/7/2007	4/29/2008	5/7/2009	5/29/2013	6/2/2005	6/2/2005	4/26/2005	5/8/2006	5/9/2007	4/28/2008	4/28/2008	5/5/2009	5/1/2013	12/9/2004	4/25/2005	5/8/2006	5/9/2007	4/28/2008	5/5/2009	5/29/2013
Notes:						PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Discrete Sample	Discrete Sample, Duplicate	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Spigot Water Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards				Pace Sample No.: W422-042908								Pace Sample No.: W427-042808	Pace Sample No.: W427D-042808							Pace Sample No.: W439-042808		
Benzene	ug/L	2	HRL	5	MCL	**0.2 J**	**0.15 J**	**3.34**	<0.2	**1.1**	<0.2	<0.2	**0.4**	<1.0	<0.2	<1.00	<1.00	<0.2	<1.0	**71.0**	<0.2	**70.0**	**54 RC**	**74.4**	**6.1**	**55 D**
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<10.0	<0.5	<25
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<10.0	<0.5	<25
Chloroethane	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<10.0	<0.5	<25
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<5.00	<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<0.1	<5.00	<5.00	<0.1	<1.0	<0.1	0.1	<1.0	<0.1	<50.0	<0.1	<25
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10.0	<1.0	<25
1,1-Dichloroethane	ug/L	--		--		**0.4**	**0.3**	<1.00	**0.4**	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<1.00	<0.2	<1.0	<0.2	0.4	<1.0	<0.2	<10.0	<0.2	<25
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	**0.3**	**0.3**	<1.00	<0.2	<1.0	<0.2	<0.2	**0.4**	<1.0	<0.2	<1.00	<1.00	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<10.0	<0.2	<25
1,1-Dichloroethene	ug/L	200	HBV	7	MCL	<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	**0.9**	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	<0.5	<0.2	<1.0	<0.5	<10.0	<0.5	<25
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	0.7	1.1	3.69	14	30	<0.2	<0.2	4.1	0.5 J	1.3	1.45	1.29	0.4	<1.0	**2.3**	**0.6**	**1.8**	**2.1**	<10.0	**0.4 QB**	<25
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	0.5	1.2	1.22 J	4.0	3.1	<0.1	<0.1	<0.1	<1.0	**0.1**	<1.00 J	<1.00 J	<0.1	<1.0	**1.0**	**0.3**	**1.3**	**0.7**	<10.0 J	**0.1**	<25
Dichlorodifluoromethane	ug/L	700	HBV	--		**1.6**	<1.0	<1.00	**3.0**	**2.3**	<1.0	<1.0	<0.1	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.0	2.4	<1.0	<1.0	<10.0	<1.0	<25
Dichlorofluoromethane	ug/L	--		--		**3.0**	**2.2**	<1.00	**3.2**	**1.4**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	<0.5	3	<1.0	<0.5	<10.0	<0.5	<25
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	**3.75**	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	**110**	**<0.5**	**93**	**78 RC**	**142**	**9.5**	**110 D**
Isopropylbenzene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	**11**	**<0.5**	**9.5**	**8.3**	**10.4**	**0.9**	<25
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	<0.5	<0.5	**0.9 J**	**0.6**	<10.0	<0.5	<25
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<1.00	<0.5	<2.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<2.0	<0.5	<0.5	<1.0	<0.5	<10.0	<0.5	<50
Methyl ethyl ketone	ug/L	4000	HRL	--		<10	<10	<5.00	<10	<10	<10	<10	<10	<10	<10	<5.00	<5.00	<10	<10	<10	<10	<10	<10	<25.0	<10	<250
Naphthalene	ug/L	300	HRL	--		**0.6 J**	**0.629 J**	<5.00	<1.0	<1.0	<1.0	<1.0	**14**	<1.0	<1.0	<5.00	<5.00	<1.0	<1.0	**1000.0**	<1.0	**780.0**	**800 RC**	**1010 J**	**510 RC**	**1400 D**
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	**9.8**	**<0.5**	**7.1**	**4.3**	<10.0	**0.6**	<25
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<10.0	<0.5	<25
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	**0.2 J**	**0.13 J**	<1.00	**0.3**	<1.0	<0.2	<0.2	5	2.0	3.3	1.07	1.09	0.3	<1.0	<0.2	<0.2	<1.0	**0.3**	<10.0	<0.2	<25
Tetrahydrofuran	ug/L	--		--		<10	<10	<5.00	<10	<10	<10	<10	<10	<1.0	<10	<5.00	<5.00	<10	<10	<10	<10	<1.0	<10	<50.0	<10	<250
Toluene	ug/L	200	HBV	1000	MCL	<0.2	<0.2	<1.00	<0.2	<1.0	**2.6**	**3.6**	<0.5	<1.0	<0.2	<1.00	<1.00	<0.2	<1.0	**8.1**	**<0.5**	**3.3**	**2.6**	**7.38 J**	**0.46 J**	<25
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	**0.1 J**	<0.2	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<1.00	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<10.0	<0.2	<25
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	**0.12 J**	<1.00	**0.1 J**	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<1.00	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<10.0	<0.2	<25
Trichloroethene (TCE) **	ug/L	0.4	HRL	2	MCL	**0.3**	**0.5**	**3.19**	**4.0**	<1.0	<0.1	<0.1	0.6	1.6	1.7	0.806 J	0.818 J	0.1	<1.0	**0.1**	**0.2**	<1.0	**0.7**	<10.0	<0.1	<25
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	**43**	**<0.5**	**70**	**35**	**76.9**	**5.2**	**53 D**
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<1.00	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.00	<1.00	<0.5	<1.0	**8.5**	**<0.5**	**6.4**	**3.1**	<10.0	**0.6**	<25
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	1.0	1.3	<1.00	2.6	4.3	<0.2	<0.2	**6.1**	<1.0	<0.2	<1.00	<1.00	<0.2	<1.0	**1.9**	**1.2**	**1.4**	**0.7**	<10.0	<0.2	<25
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	**0.993 J**	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.00	<1.00	<0.2	<1.0	**74**	**<0.2**	**68**	**46**	**107**	**5.3**	**66 D**
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<2.00	<0.3	<1.0	<0.3	<0.3	**0.3**	<1.0	<0.3	<2.00	<2.00	<0.3	<1.0	**120**	**<0.3**	**75**	**57**	**136**	**6.8**	**72 D**
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	**2.993 J**	<0.5	<1.0	<0.5	<0.5	**0.5**	<1.0	<0.5	<3.00	<3.00	<0.5	<2.0	**194**	**<0.5**	**143**	**103**	**243**	**12.1**	**138 D**

Notes:

Bold = compound detected above reporting limit

0.5	- concentration exceeds MN drinking water criteria
18	- concentration exceeds Federal drinking water criteria
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	- Results inconsistent with other results (outlier)

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QB - Analyte found in the associated method blank and in the sample
QR - Result estimated
RC - Report level was changed due to sample dilution
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by MDH
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results- Drift Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	R. REED II	Nine Mile Creek
					CWI Name:	JAMES HILDRETH	--
					MN Unique Well No.:	00218194	--
					Aquifer:	Drift	
					STS/AECOM Sample ID:	6223 Westridge Blvd	Nine Mile Creek near Thermotech 1202
					MDH Sample No:	200532479	200603046
					Sample Date:	12/1/2005	2/10/2006
					Notes:	Spigot Water Sample	Grab Water Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards			
Benzene	ug/L	2	HRL	5	MCL	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1
Chloromethane	ug/L	--		--		<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HBV	7	MCL	<0.5	<0.5
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	<0.2	**0.5**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5
Isopropylbenzene	ug/L	--		--		<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5
Methyl ethyl ketone	ug/L	4000	HRL	--		<10	<10
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	**3.4**
Tetrahydrofuran	ug/L	--		--		<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.2	<0.2
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	2	MCL	<0.1	**0.9**
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5

Notes:

Bold = compound detected above reporting limit

0.5	- concentration exceeds MN drinking water criteria
18	- concentration exceeds Federal drinking water criteria
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	- Results inconsistent with other results (outlier)

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QB - Analyte found in the associated method blank and in the sample
QR - Result estimated
RC - Report level was changed due to sample dilution
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by MDH
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results- Platteville Formation Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						CITY OF ST LOUIS PARK	W18	W18	W20	W20	W20	W20	W20	W20	W27	W27	W27	W27	W27	P62	W101	W101
CWI Name:						ST. LOUIS PARK 3																
MN Unique Well No.:						00206440	00216046	00216046	00216048	00216048	00216048	00216048	00216048	00216048	00216052	00216052	00216052	00216052	00216052	00227948	00149711	00149711
Aquifer:						Platt.-St. Peter	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville
STS/AECOM Sample ID:							W18													P62		
MDH Sample No:						200423868	200514048	13E0103-09		200610318	200710989		200912069	13E0103-04			200710983		200912055	200514034		200610319
Sample Date:						8/16/2004	6/3/2005	5/1/2013	5/2/2005	5/2/2006	5/7/2007	5/12/2008	5/12/2009	5/1/2013	5/2/2005	5/2/2005	5/7/2007	5/12/2008	5/8/2009	6/2/2005	5/2/2005	5/2/2006
Notes:						City of St. Louis Park Data	Discrete Sample	Sampled by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA		Collected by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Discrete Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards								Pace Sample No.: W20-051208						Pace Sample No.: W27-051208				
Benzene	ug/L	2	HRL	5	MCL	<0.2	**6.1**	**31**	**0.9**	**0.5**	**0.4**	<1.0	**0.9**	**5.2**	39.0	36.0	23.0	62.5	23.0	**0.3**	13.0	8.0
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	**0.3 J**	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<1.0	**0.1**	<0.1	<0.1	<5.0	<0.1	<1.0	**0.1**	<0.1	<0.1	<5.0	<0.1	<0.1	**0.1**	<0.1
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	**0.3**	**0.2**
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	**0.6**
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.5	<0.5	**2.7**	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.5	<0.2	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	<0.2	**7.2**	**950 D**	**1**	**0.9**	**0.4**	**1.37**	**0.8**	**16**	<0.2	**0.1 J**	<0.2	<1.0	<0.1	**0.8**	**0.8**	**18**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	**11**	**120 D**	<0.1	<0.1	<0.1	<1.0	**0.2**	**1.2**	<0.1	<0.1	<0.1	<1.0	<0.2	**0.2**	**1.8**	**8.4**
Dichlorodifluoromethane	ug/L	700	HBV	--		<0.5	<1.0	<1.0	<0.1	<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<0.1
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.2	<0.5	**7.4**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	15	11	9.6	6.51	5.9	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	**2.3**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	**2.2**	**1.8**	**2.0**	**1.92**	**1.4**	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<0.5	<1.0	**9.0**	2.5	1.5	<1.0	<5.0	<1.0	<1.0	**22**	**5.3**	**5.9**	**1.03 J**	**8.4**	<1.0	**29**	**0.6 J**
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	**0.5**	**0.3 J**	**0.47 J**	<1.0	**0.4 J**	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<1.0	5.1	0.9	<0.2	0.517 J	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<1.0	<10	<10	<10	<5.0	<10	<10	<10	<10	<10	<5.0	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.2	**0.5**	**1.0**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	**0.30 J**	<1.0	**0.3 J**	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	<0.1	**0.6**	<1.0	**2.9**	**1.3**	**0.3**	**3.24**	**0.2**	<1.0	<0.1	**0.1**	<0.1	<1.0	<0.1	<0.1	<0.1	**0.2**
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	**0.6**	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	**0.5**	<0.5	<0.5	<1.0	**0.3 J**	<0.5	<0.5	<0.5
Vinyl Chloride**	ug/L	0.2	HRL	2	MCL	<0.5	**3.8**	**1100 D**	**0.4**	**0.1 J**	**0.2**	<1.0	**2.1**	**96 D**	<0.2	<0.2	<0.2	<1.0	<0.2	**0.2**	**0.6**	**2.0**
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	**9.5**	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	**3**	**1.4**	**1.1**	<1.0	**0.9**	<0.2	**0.7**	**0.4**
p&m-Xylene	ug/L	300	HRL	--		<0.2	<0.3	**4.1**	<0.3	<0.3	<0.3	<2.0	<0.3	<1.0	**1.1**	**0.5**	**0.6**	<2.0	**0.5**	<0.3	**0.5**	**0.3**
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.4	<0.5	**13.6**	<0.5	<0.5	<0.5	<3.0	<0.5	<2.0	**4.1**	**1.9**	**1.7**	<3.0	**1.4**	<0.5	**1.2**	**0.7**

Notes:

Bold face - detect

0.5	- framed cell - detected concentration exceeds MN drinking water criteria
18	- shaded cell - detected concentration exceeds Federal drinking water criteria
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	-

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Result estimated
RC - Report level was changed due to sample dilution
QB - Analyte found in the associated method blank and in the sample
QF - Result estimated (spike recoveries did not meet QC criteria)
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of Health
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results - Platteville Formation Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	W101	W101-DUP	W101	W101	W101	W120	W120	W120	W120	W124	W131	W131	W131	W131	W131	W131	W132
					CWI Name:																	
					MN Unique Well No.:	00149711	00149711	00149711	00149711	00149711	00165576	00165576	00165576	00165576	00165579	00165586	00165586	00165586	00165586	00165586	00165586	00165587
					Aquifer:	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville
					STS/AECOM Sample ID:										W124							W132
					MDH Sample No:	200710982	200710997		200912071	13D1907-05	200710987		200911626	13E0012-10	200514035		200610301	20070969		200911625	13D1907-03	200514033
					Sample Date:	5/7/2007	5/7/2007	5/13/2008	5/12/2009	4/29/2013	5/7/2007	5/12/2008	5/8/2009	4/30/2013	6/2/2005	5/3/2005	5/3/2006	5/8/2007	5/7/2008	5/7/2009	4/29/2013	6/2/2005
					Notes:	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Discrete Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Discrete Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards				Pace Sample No.: W101-051308				Pace Sample No.: W120-051208							Pace Sample No.: W131-050708			
Benzene	ug/L	2	HRL	5	MCL	**6.3**	**6.5**	3.72	**5.9**	2.3	**5.1**	**0.792 J**	**10**	**10**	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	**1.4**
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<5.0	<0.1	<0.10	<0.1	<5.0	<1.0	<1.0	<0.1	**0.1**	<0.1	<0.1	<5.0	<0.1	< 0.10	<0.1
1,1-Dichloroethane	ug/L	--		--		**0.18 J**	**0.18 J**	<1.0	**0.2**	<0.20	<0.2	<1.0	<2.00	<1.0	**0.6**	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	**0.3**
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<1.0	**0.7**	<0.20	<0.2	<1.0	<2.00	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	<0.2	<1.0	<0.2	<0.50	**0.5**	<1.0	<5.00	<1.0	<0.5	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.50	<0.5
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**19**	**32**	<1.0	**2.4**	<0.20	**110 RC**	**16.2**	**150 QB**	**58**	<0.2	**0.3**	<0.2	**0.18 J**	<1.0	**2.3**	< 0.20	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**7.5**	**11**	**1.52**	**1.9**	<0.10	**12**	**1.42**	**22**	**19**	<0.1	<0.1	<0.1	<0.1	<1.0	**0.3**	< 0.10	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<1.0	<5.00	<1.0	<1.0	<0.1	<0.1	<0.1	<1.0	<0.1	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.50	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	<1.0	**0.3 J**	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<2.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<5.0	<1.0	<1.0	**2.0**	<5.0	<10.00	<1.0	<1.0	**6.2**	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<1.0	<0.2	<0.20	**0.6**	<1.0	<2.00	<1.0	<0.2	**12**	**0.3**	**1.9**	<1.0	**1.0**	< 0.20	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<5.0	<10	<10	<10	<5.0	<25.00	<1.0	<10	<10	<10	<10	<5.0	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	**0.19 J**	**0.17 J**	<1.0	**0.2 J**	**0.65**	**0.15 J**	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	**0.50**	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<1.0	<0.2	<0.20	<0.2	<1.0	<5.00	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	**0.1**	**0.2**	<1.0	**0.2**	<0.10	**1.3**	<1.0	<1.00	<1.0	<0.1	**2.7**	**0.2**	**0.7**	<1.0	**0.5**	< 0.10	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<1.0	<0.5	<0.50	<0.5	<1.0	<5.00	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	<0.5
Vinyl Chloride**	ug/L	0.2	HRL	2	MCL	**2.5**	**3.6**	<1.0	**0.6**	<0.20	**33.0**	**2.53**	**60**	**33**	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	**0.7**
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<1.0	<0.2	<0.20	<0.2	<1.0	<2.00	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	<0.2
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<2.0	<0.3	<0.30	<0.3	<2.0	<3.00	<1.0	<0.3	<0.3	<0.3	<0.3	<2.0	<0.3	< 0.30	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<3.0	<0.5	<.5	<0.5	<3.0	<5.0	<2.0	<0.5	<0.5	<0.5	<0.5	<3.0	<0.5	<0.5	<0.5

Notes:

Bold face - detect

0.5	- framed cell - detected concentration exc
18	- shaded cell - detected concentration exc
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	-

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Result estimated
RC - Report level was changed due to sample dilution
QB - Analyte found in the associated method blank and in the sample
QF - Result estimated (spike recoveries did not meet QC criteria)
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department o
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concen

Table 4
Monitoring Well Groundwater Analytical Results - Platteville Formation Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	W143	W143	W143	W143	W143	W143	W143-DUP-1	W421	W421	W421	W421	W421	W421	W421	W421 DUP-6	W424	W426
					CWI Name:								W421 - U.S.G.S. WELL W-121									
					MN Unique Well No.:	00216051	00216051	00216051	00216051	00216051	00216051	00216051	00434044	00434044	00434044	00434044	00434044	00434044	00434044	00434044	00439809	00439812
					Aquifer:	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville
					STS/AECOM Sample ID:								SLP 421								W424	
					MDH Sample No:		200610305	200710971		200912064	13D1907-01	3D1907-08	200432996		200610296	200710964		200911620	13F0048-03	13F0048-05	200514028	
					Sample Date:	5/3/2005	5/3/2006	5/8/2007	5/13/2008	5/12/2009	4/29/2013	4/29/2013	12/9/2004	5/3/2005	5/3/2006	5/8/2007	4/29/2008	5/7/2009	6/3/2013	6/3/2013	6/2/2005	5/2/2005
					Notes:	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Collected by AECOM	Spigot Water Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Collected by AECOM	Discrete Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards					Pace Sample No.: W143-051308								Pace Sample No.: W421-042908					
Benzene	ug/L	2	HRL	5	MCL	**1.1**	**12**	**0.6**	<1.0	**1.1**	**11**	**11**	**28.0**	**32.0**	**25.0**	**29.0**	**25.8**	**26.0**	**22**	**22**	<0.2	**0.8**
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	**0.5**	<0.5	<0.5	**0.48 J**	<10	<5.00	<1.0	<1.0	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	<0.5	<0.5	<0.5	<0.5	<10	<5.00	<1.0	<1.0	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	<0.5	<0.5	<0.5	<0.5	<10	<10.00	<1.0	<1.0	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<5.0	<0.1	< 0.10	< 0.10	<0.1	<0.1	<0.1	<0.1	<50	<1.0	<1.0	<1.0	<0.1	**0.1**
1,1-Dichloroethane	ug/L	--		--		<0.2	**1.7**	<0.2	<1.0	<0.2	**1.9**	**1.9**	**0.3**	**3.9**	**0.3**	<0.2	<10	<2.00	<1.0	<1.0	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	< 0.20	<0.2	<0.2	<0.2	<0.2	<10	<2.00	<1.0	<1.0	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	**1.7**	<0.2	<1.0	<0.2	**21**	**20**	**2.3**	<0.2	**6.6**	**9.3**	<10	<5.00	**1.1**	**1.1**	<0.5	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	14	**400 RC**	23	26.8	35	**7600 D**	**7600 D**	**410**	**810.0**	**1500 RC**	**2500 RC**	**1720.0**	**870 QB**	**310 D**	**330 D**	<0.2	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	4.7	**150 RC**	9.3	12.8	16	**580 D**	**560 D**	**260.0**	**330.0**	**290 RC**	**210 RC**	**151 J**	**230.0**	**58**	**60**	<0.1	**0.1**
Dichlorodifluoromethane	ug/L	700	HBV	--		<0.1	<0.1	<0.1	<1.0	<0.1	**1.1**	**1.2**	<1.0	<0.1	<0.1	<0.1	<10	<10.00	<1.0	<1.0	<1.0	<0.1
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	<0.5	<0.5	<0.5	<0.5	<10	<5.00	<1.0	<1.0	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	**3.2**	<0.5	**0.682 J**	**0.9**	**1.0**	**1.0**	**31**	**31**	<0.5	**33**	**31.2**	**32**	**36**	**36**	<0.5	13
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	**4.8**	**5**	**4.5**	**5.6**	<10	**5.0**	**4.8**	**5.2**	<0.5	4.3
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	<0.5	<0.5	**0.3 J**	**0.35 J**	<10	<5.00	<1.0	<1.0	<0.5	1.2
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	<0.5	<0.5	<0.5	<0.5	<10	<5.00	<2.0	<2.0	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		**6.3**	**3.9**	<1.0	**0.895 J**	**1.5**	<1.0	<1.0	**360.0**	**230**	**450 RC**	**37 QF**	**133 J**	**280**	**680 D**	**800 D**	<1.0	**9.6**
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	**2.1**	**1.6**	**1.5**	**1.7**	<10	<5.00	**2.0**	**2.2**	<0.5	**1.6**
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	<0.5	<0.5	<0.5	<0.5	<10	<5.00	<1.0	<1.0	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	22.0	37.0	10.0	0.662 J	0.4	< 0.20	< 0.20	42.0	27.0	1.4	0.2	<10	<2.00	<1.0	<1.0	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<5.0	<10	<10	<10	<10	<10	<10	<10	<50	<100.00	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	**0.8**	**0.14 J**	<1.0	**0.5**	**1.1**	**1.2**	**2.5**	**2**	**2.2**	**2.3**	<10	<5.00	**2.5**	**2.6**	**32**	**0.6**
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<1.0	<0.2	< 0.20	< 0.20	<0.2	<0.2	<0.2	<0.2	<10	<2.00	<1.0	<1.0	<0.2	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	**93.0**	**2200 RC**	**108.0**	**92.5**	**81.0**	**320 D**	**310 D**	760.0	259.0	3.9	1.8	<10	1.0	<1.0	<1.0	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	**5.9**	**7.8**	**3.9**	**6.0**	<10	**9.0**	**8.3**	**9.3**	<0.5	13
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<1.0	<0.5	< 0.50	< 0.50	**2.4**	**3.2**	**1.8**	**3.5**	<10	<5.00	**4.1**	**4.6**	<0.5	8.5
Vinyl Chloride**	ug/L	0.2	HRL	2	MCL	2.4	42.0	1.7	2.91	4.6	280 D	270 D	**100**	**150.0**	**160 RC**	**340 RC**	**322.0**	**510.0**	**280 D**	**310 D**	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<0.2	**0.7**	<0.2	<1.0	**0.2**	**0.35**	**0.36**	**16**	**20**	**17**	**22**	**16.4**	**16**	**22**	**22**	<0.2	6.5
p&m-Xylene	ug/L	300	HRL	--		<0.3	**0.6**	<0.3	<2.0	**0.26 J**	**0.64**	**0.65**	**14**	**13**	**13**	**18**	<20	**15**	**22**	**22**	<0.3	3.5
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	**1.3**	<0.5	<3.0	**0.46 J**	**0.99**	**1.01**	**30**	**33**	**30**	**40**	**36.4**	**31**	**44**	**44**	<0.5	10.0

Notes:

Bold face - detect

0.5	- framed cell - detected concentration exc
18	- shaded cell - detected concentration exc
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	-

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Result estimated
RC - Report level was changed due to sample dilution
QB - Analyte found in the associated method blank and in the sample
QF - Result estimated (spike recoveries did not meet QC criteria)
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department o
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concen

Table 4
Monitoring Well Groundwater Analytical Results - Platteville Formation Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	W426D	W426	W426	W426	W426	W426-DUP	W428	W428	W428	W428	W428	W429	W429	W429	W431	W431	W431
					CWI Name:																	
					MN Unique Well No.:	00439812	00439812	00439812	00439812	00439812	00439812	00439810	00439810	00439810	00439810	00439810	00439724	00439724	00439724	00462935	00462935	00462935
					Aquifer:	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville
					STS/AECOM Sample ID:												W429	W429	W429			
					MDH Sample No:		200611312	200710974		200911627	200911628		200610302	200710991		200911618	200514031	200514031	200514031		200610303	200710968
					Sample Date:	5/2/2005	5/8/2006	5/9/2007	5/12/2008	5/8/2009	5/8/2009	5/3/2005	5/3/2006	5/8/2007	5/7/2008	5/7/2009	6/2/2005	6/2/2005	6/2/2005	5/3/2005	5/3/2006	5/8/2007
					Notes:	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Discrete Sample	Discrete Sample, MS Sample	Discrete Sample, MSD Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards					Pace Sample No.: W426-051208						Pace Sample No.: W428-050708							
Benzene	ug/L	2	HRL	5	MCL	0.8	<1.0	0.7	<1.0	0.2	0.2	**0.2**	**0.4**	**0.16 J**	<1.0	<0.2	<0.2	<0.2	<0.2	**4.6**	**3.6**	**4.5**
n-Butylbenzene	ug/L	--		--		<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		**0.1**	<1.0	<0.1	<5.0	<0.1	<0.1	<0.1	<0.1	<0.1	<5.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethane	ug/L	--		--		<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	**0.4**	**0.5**
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	**0.4**	**0.5**
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<1.0	<0.2	<0.5	<0.5	<0.5	<0.2	<0.2	**0.8**
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	0.2	<1.0	0.4	<1.0	**0.5 QB**	**1.1 QB**	<0.2	<0.2	<0.2	<1.0	**2.7**	<0.2	<0.2	<0.2	89.0	22	180 RC
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**0.1**	<1.0	**0.2**	<1.0	<0.1	**0.2**	<0.1	<0.1	<0.1	<1.0	**0.3**	<0.1	<0.1	<0.1	**41**	**14**	**51**
Dichlorodifluoromethane	ug/L	700	HBV	--		<0.1	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1
Dichlorofluoromethane	ug/L	--		--		<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	**5.7**	**5.1**	**4.5**
Ethylbenzene	ug/L	50	HBV	700	MCL	12	6.2	12	3.88	0.48 J	0.4 J	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		4.3	1.9	3.9	1.11	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		1.1	<1.0	0.7	<1.0	0.3 J	0.3 J	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		**8.9**	**4.1**	**14 QR**	**1.44 J**	**2.3 QE**	**2.3**	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.763 J QF**
n-Propylbenzene	ug/L	--		--		**1.6**	**0.8 J**	**1.4**	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<1.0	**0.4**	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<1.0	<10	<5.0	<10	<10	<10	<10	<10	<5.0	<10	<10	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	**0.7**	**0.5 J**	**0.6**	<1.0	**0.2 J**	**0.2 J**	<0.5	<0.5	**0.15 J**	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.16 J**
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	<0.1	<1.0	**0.3**	<1.0	<0.1	**0.1**	<0.1	**0.06 J**	<0.1	<1.0	**0.2**	<0.1	<0.1	<0.1	7.4	1.0	3.0
1,2,4-Trimethylbenzene	ug/L	--		--		12	4.4	5.7	2.33	2.3	2.2	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		8.3	2.9	3.9	1.83	1.9	1.8	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride**	ug/L	0.2	HRL	2	MCL	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	**9.1**	**9.7**	**12.0**
o-Xylene	ug/L	300	HRL	--		6.4	2.9	4.2	1.92	1.7	1.5	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		3.4	2	2.5	<2.0	0.9	0.9	<0.3	<0.3	<0.3	<2.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	9.8	4.9	6.7	3.92	2.6	2.4	<0.5	<0.5	<0.5	<3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect

0.5	- framed cell - detected concentration exc
18	- shaded cell - detected concentration exc
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	-

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Result estimated
RC - Report level was changed due to sample dilution
QB - Analyte found in the associated method blank and in the sample
QF - Result estimated (spike recoveries did not meet QC criteria)
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department o
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concen

Table 4
Monitoring Well Groundwater Analytical Results - Platteville Formation Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	W431	W431	W431	W433	W433FB	W433FB	W433	W433	W433	W433 DUP	W433	W434	W434	W434	W434	W434	W434
					CWI Name:												W434- ST. LOUIS PARK B-D					
					MN Unique Well No.:	00462935	00462935	00462935	00462933	00462933	00462933	00462933	00462933	00462933	00462933	00462933	00463012	00463012	00463012	00463012	00463012	00463012
					Aquifer:	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville
					STS/AECOM Sample ID:												SLP 434					
					MDH Sample No:		200911621	13D1907-07			200610297	200710965		200912065	200912066	13E0012-11	200432997			200710963		200911624
					Sample Date:	5/7/2008	5/7/2009	4/29/2013	5/2/2005	5/2/2005	5/3/2006	5/8/2007	5/13/2008	5/12/2009	5/12/2009	4/30/2013	12/9/2004	5/3/2005	5/3/2006	5/8/2007	5/7/2008	5/7/2008
					Notes:	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	PAH Split Sample	Sampled by AECOM	Spigot Water Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards		Pace Sample No.: W431-050708							Pace Sample No.: W433-051308								Pace Sample No.: W434-050708	
Benzene	ug/L	2	HRL	5	MCL	**4.36**	**5**	**5.6**	**31.0**	<0.2	<0.2	**35.0**	**24.7**	**28 RC**	**28 RC QE**	**33**	**23.0**	**24.0**	**16.0**	**16.0**	**13.2**	**14.0**
n-Butylbenzene	ug/L	--		--		<1.0	<5.00	< 0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Chlorodibromoethane	ug/L	--		--		<1.0	<5.00	< 0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Chloroethane	ug/L	--		--		<1.0	<5.00	< 0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Chloroform	ug/L	30	HRL	--		<5.0	<1.0	< 0.10	<0.1	**0.1**	<0.1	<0.1	<5.0	<0.1	<0.1	<10	<0.1	<0.1	<0.1	<0.1	<25.00	<1.0
1,1-Dichloroethane	ug/L	--		--		<1.0	<2.00	**0.57**	<0.2	<0.2	**0.4**	<0.2	<1.0	**0.3**	**0.3 QD**	<10	**0.4**	<0.2	<0.2	<0.2	<5.00	<2.00
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<1.0	<2.00	<0.20	<0.2	<0.2	<0.2	<0.2	<1.0	**1.8**	**1.8 QD**	<10	<0.2	**0.2**	<0.2	<0.2	<5.00	<2.00
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	**1.12**	<5.00	< 0.50	<0.2	<0.2	**5.5**	<0.2	<1.0	**1.8**	**1.8**	<10	**6.5**	**11.0**	**9.3**	**6.0**	<5.00	<5.00
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**288.0**	**450 QB**	<0.20	**1**	<0.2	**620 RC**	**150 RC**	**17.6**	**190 RC**	**190 RC QE**	**690**	**290.0**	**1100.0**	**1700 RC**	**1200 RC**	**696.0**	**330 QB**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**50.9**	**60**	< 0.10	**3**	<0.1	**46**	**27**	**4.40**	**26**	**26**	**34**	**43**	**63**	**56**	**54**	**33.4**	**35**
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<5.00	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<0.1	<10	<1.0	<0.1	<0.1	<0.1	<5.00	<5.00
Dichlorofluoromethane	ug/L	--		--		**3.19**	**5 J**	3.6	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Ethylbenzene	ug/L	50	HBV	700	MCL	<1.0	<5.00	< 0.50	<0.5	<0.5	**0.3 J**	<0.5	<1.0	<0.5	<0.5	<10	**2.5**	<0.5	**0.6**	**0.30 J**	<5.00	<5.00
Isopropylbenzene	ug/L	300	HRL*	--		<1.0	<5.00	< 0.50	<0.5	<0.5	<0.5	<0.5	<1.0	**0.3 J**	<0.5	<10	**1.3**	**1.2**	**0.4 J**	**0.44 J**	<5.00	<5.00
p-Isopropyltoluene	ug/L	--		--		<1.0	<5.00	< 0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<1.0	<5.00	< 0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<20	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Naphthalene	ug/L	300	HRL	--		<5.0	<10.00	<1.0	**3.4**	**1.3**	<1.0	**2.0 QF**	<5.0	<1.0	<1.0	<10	**8.9**	<1.0	**1.7**	**1.1 QF**	<25.00	<10.00
n-Propylbenzene	ug/L	--		--		<1.0	<5.00	<0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Styrene	ug/L	--		100	MCL	<1.0	<5.00	<0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<1.0	<2.00	<0.20	<0.2	<0.2	**0.9**	**0.14 J**	<1.0	<0.2	<0.2	<10	**1200.0**	**760.0**	**39.0**	**7.5**	**4.47 J**	<2.00
Tetrahydrofuran	ug/L	--		--		<5.0	<25.00	<10	<10	<10	<10	<10	<5.0	<10	<10	<10	<10	<10	<10	<10	<25.00	<25.00
Toluene	ug/L	200	HBV	1000	MCL	<1.0	<5.00	**0.36**	<0.5	<0.5	**0.6**	**0.7**	<1.0	**0.5**	**0.5**	<10	<0.5	**0.7**	**<0.5**	**0.22 J**	<5.00	<5.00
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<1.0	<5.00	<0.20	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<10	<0.2	<0.2	<0.2	<0.2	<5.00	<5.00
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	2.74	3.0	<0.10	**0.4**	<0.1	**25**	<0.1	<1.0	**0.3**	**0.3**	<10	**900.0**	**680.0**	**56.0**	**13.0**	**8.67**	2.00
1,2,4-Trimethylbenzene	ug/L	--		--		<1.0	<5.00	<0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
1,3,5-Trimethylbenzene	ug/L	100		--		<1.0	<5.00	<0.50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<5.00	<5.00
Vinyl Chloride**	ug/L	0.2	HRL	2	MCL	**6.96**	**15.00**	<0.20	**0.8**	<0.2	**120.0**	**300 RC**	**4.33**	**300 RC**	**300 RC QE**	**370**	**86.0**	**110.0**	**91 RC**	**170 RC**	**85.8**	**120.0**
o-Xylene	ug/L	300	HRL	--		<1.0	<2.00	<0.20	<0.2	<0.2	**0.2 J**	<0.2	<1.0	**0.3**	**0.3**	<10	<0.2	<0.2	<0.2	<0.2	<5.00	<2.00
p&m-Xylene	ug/L	300	HRL	--		<2.0	<3.00	<0.30	<0.3	<0.3	**0.5**	<0.3	<2.0	**0.4**	**0.4**	<10	**0.6**	**0.8**	<0.3	**0.4**	<10.0	<3.00
Xylene (total)	ug/L	300	HRL	10000	MCL	<3.0	<5.0	<0.5	<0.5	<0.5	**0.7**	<0.5	<3.0	**0.7**	**0.7**	<20	**0.8**	**1.0**	<0.5	**0.6**	<15.0	<5.0

Notes:

Bold face - detect

0.5	- framed cell - detected concentration exc
18	- shaded cell - detected concentration exc
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	-

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Result estimated
RC - Report level was changed due to sample dilution
QB - Analyte found in the associated method blank and in the sample
QF - Result estimated (spike recoveries did not meet QC criteria)
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department o
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concen

Table 4
Monitoring Well Groundwater Analytical Results - Platteville Formation Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						W434	W437	W437	W437	W437	W437	W437	W438	W438	W438	W438	W438	W438	D. BATTLE	D. SJOLANDER	R. & T. RATHMANNER
CWI Name:																			--	--	LLOYD NELSON
MN Unique Well No.:						00463012	00498917	00498917	00498917	00498917	00498917	00498917	00498919	00498919	00498919	00498919	00498919	00498919	00223763	00218181	00206459
Aquifer:						Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platteville	Platt/St. Peter
STS/AECOM Sample ID:																			6008 Kaymar Dr.	4540 Vandervork Ave	4366 Thielen Ave
MDH Sample No:						13E0103-02		200610316	200710984		200912056	13E0012-13			200710970		200912070	13E0012-04	200531631	200531632	200532481
Sample Date:						5/1/2013	5/2/2005	5/2/2006	5/7/2007	5/12/2008	5/8/2009	4/30/2013	5/3/2005	5/3/2006	5/8/2007	5/13/2008	5/12/2009	4/30/2013	11/19/2005	11/21/2005	11/23/2005
Notes:						Collected by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Collected by AECOM	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards						Pace Sample No.: W437-051208						Pace Sample No.: W438-051308					
Benzene	ug/L	2	HRL	5	MCL	12 D	2.4	1.8	1.5	<25.0	1.2	<10	15.0	14.0	15.0	10.6	9.0	7.8	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<10	<0.5	<0.5	<0.5	<25.0	**1.3**	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<10	<0.5	<0.5	<0.5	<25.0	<0.5	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<10	<0.5	<0.5	<0.5	<25.0	<0.5	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<10	**0.1**	<0.1	<0.1	<125	<0.1	<10	<0.1	<0.1	<0.1	<50	<0.1	<1.0	<0.1	<0.1	<0.1
1,1-Dichloroethane	ug/L	--		--		<10	<0.2	<0.2	<0.2	<25.0	<0.2	<10	**0.2**	**0.2 J**	**0.2**	<10	**0.2**	<1.0	<0.2	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<10	<0.2	<0.2	<0.2	<25.0	<0.2	<10	<0.2	<0.2	<0.2	<10	<0.2	<1.0	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<10	<0.2	**2.8**	1.2	<25.0	<0.5	<10	**3.7**	**3.7**	**5.5**	<10	**0.6**	<1.0	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**510 D**	**86.0**	**980 RC**	**460 RC**	**26.8**	**55**	**1700 D**	**190.0**	**300 RC**	**366.0**	**862.0**	**78 RC**	<1.0	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**31 D**	**2.5**	**3.4**	**3.9**	<25.0	**3.8**	**20 D**	**18**	**24**	**41**	**26.5**	**11**	<1.0	<0.1	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<10	<0.1	<0.1	<0.1	<25.0	<0.1	<10	<0.1	<0.1	<0.1	<10	<0.1	<1.0	<0.1	<0.1	<0.1
Dichlorofluoromethane	ug/L	--		--		<10	<0.5	<0.5	<0.5	<25.0	<0.5	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<10	13	9.7	6.8	<25.0	4.7	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<10	**8.3**	**4.7**	**6.0**	<25.0	**4.6**	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<10	**1.4**	**0.7**	**1.0**	<25.0	<0.5	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<20	<0.5	<0.5	<0.5	<25.0	<0.5	<20	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<10	**4100.0**	**3600.0**	**59**	**1430.0**	**3800 RC**	**480 D**	**1.6**	**<1.0**	<1.0	**9.30 J**	<1.0	<2.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<10	**2.5**	**1.5**	**2.1**	<25.0	**2.2**	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<10	<0.5	<0.5	<0.5	<25.0	<0.5	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<10	**13000.0**	**3900.0**	**6500 RC**	**5290.0**	**8000 RC**	<10	3.6	1.3	0.2	<10	0.2	<1.0	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<100	<10	<10	<10	<125	<10	<100	<10	<10	<10	<50	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<10	**0.9**	0.7	**0.6**	<25.0	**0.48 J**	<10	<0.5	<0.5	**0.14 J**	<10	<0.5	<1.0	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<10	<0.2	<0.2	<0.2	<25.0	<0.2	<10	<0.2	<0.2	<0.2	<10	<0.2	<1.0	<0.2	<0.2	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	<10	**2600.0**	**4200.0**	**3600 RC**	**2760.0**	**7900 RC**	<10	200.0	150 RC	71.0	21.6	3.0	<1.0	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<10	<0.5	**24**	**32**	<25.0	**21**	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<10	**19**	**6.9**	**14**	<25.0	**11**	<10	<0.5	<0.5	<0.5	<10	<0.5	<1.0	<0.5	<0.5	<0.5
Vinyl Chloride**	ug/L	0.2	HRL	2	MCL	**120 D**	**8.6**	**40.0**	**21.0**	<25.0	**7.9**	**210 D**	36.0	31.0	36.0	23.3	10.0	<1.0	<0.2	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<10	**7.4**	**4.4**	**3.2**	<25.0	**1.8**	<10	<0.2	<0.2	<0.2	<10	<0.2	<1.0	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<10	**14**	**8.1**	**6.7**	<25.0	**3.9**	<10	<0.3	<0.3	<0.3	<20	<0.3	<1.0	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<20	24.4	12.5	9.9	<50.0	5.8	<20	<0.5	<0.5	<0.5	<30	<0.5	<2.0	<0.5	<0.5	<0.5

Notes:

Bold face - detect

0.5	- framed cell - detected concentration exc
18	- shaded cell - detected concentration exc
135	- increasing trend in concentrations
37	- decreasing trend in concentrations
???	-

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Result estimated
RC - Report level was changed due to sample dilution
QB - Analyte found in the associated method blank and in the sample
QF - Result estimated (spike recoveries did not meet QC criteria)
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department o
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concen

Table 4
Monitoring Well Groundwater Analytical Results- St. Peter Sandstone Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						SLP3	SLP3	SLP3	SLP3	SLP3	SLP3	PERRY A & CINDY L WITKIN	W14	W21	W24	W24	W24	W24	W33	W33R	W33R	W33R	W122
CWI Name:						ST. LOUIS PARK 3	ST. LOUIS PARK 3	ST. LOUIS PARK 3	ST. LOUIS PARK 3	ST. LOUIS PARK 3	ST. LOUIS PARK 3	J. J. LIEBENBERG							ROBINSON RUBBER CO.	ROBINSON RUBBER CO.	ROBINSON RUBBER CO.	ROBINSON RUBBER CO.	
MN Unique Well No.:						00206440	00206440	00206440	00206440	00206440	00206440	00203620	00114472	00216049	00160018	00160018	00160018	00160018	00206449	00206449	00206449	00206449	00165578
Aquifer:						Platt.-St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter-PDCJ	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter
STS/AECOM Sample ID:												EDINA PRI #1	W14	W21									
MDH Sample No:						200423868	200423868	200610299	200710992		200912061	200429907	200514032	200514046	200610292	200712749	200811238	200911603	200610293	200725301	200811241	200911602	
Sample Date:						8/16/2004	5/9/2005	5/4/2006	5/10/2007	Spring 2008	5/11/2009	10/22/04	6/2/2005	6/3/2005	5/1/2006	5/22/2007	5/5/2008	5/4/2009	5/1/2006	8/21/2007	5/5/2008	5/4/2009	5/9/2005
Notes:						City of St. Louis Park Data	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	Spigot Water Sample	Discrete Sample	Discrete Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards						Pace Sample No.: 0289-50060 SLP03													
Benzene	ug/L	2	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<5.00	<0.2	<0.2	<0.2	<0.2	**0.5**	**0.4**	**0.4**	**0.4**	<1.0	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.2	<0.2	<0.2	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<0.1	<5.00	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<0.5	<0.5	<0.5	<0.1
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<0.2	<0.2	<5.00	<0.2	<0.2	<0.2	<0.2	**0.4**	**0.6**	**0.6**	**0.5**	<1.0	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<5.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.5	<0.2	<0.2	<0.2	<5.00	<0.2	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<1.0	<0.5	<0.5	<0.5	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	<0.2	<0.2	<0.2	**0.2**	**6.56 J**	<0.2	<0.2	<0.2	<0.2	**8.2**	**7**	**7.5**	**7.4**	<1.0	<0.2	**1.1**	**0.18 J**	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1	<0.1	<0.1	**1.64 J**	<0.1	<0.1	<0.1	<0.1	**0.7**	**0.5**	**0.5**	**0.5**	<1.0	<0.1	**0.09 J**	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<0.5	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.2	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<0.5	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	**0.3**	**1.35 J**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	**3.3**	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<5.00	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.2	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	**0.6**	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<5.00	<0.2	<0.2	<0.2	<0.2	<0.2	0.12 J	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	<0.1	<0.1	**0.07 J**	**0.1**	**4.57 J**	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.3**	**0.3**	**0.3**	<1.0	<0.1	**1.3**	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<0.5	<5.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.5	<0.2	<0.2	<0.2	<5.00	<0.2	<0.2	<0.2	<0.2	**0.9**	**0.8**	**1.4**	**1.0**	<1.0	<0.2	<0.2	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<0.2	<0.2	<5.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<0.2	<0.3	<0.3	<0.3	<10.00	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.4	<0.5	<0.5	<0.5	<15.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect

0.5 - framed cell - detected concentration excee
18 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr

Table 4
Monitoring Well Groundwater Analytical Results- St. Peter Sandstone Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	W122	W122	W122	W122	W133	W133	W133	W133	W133	W133
					CWI Name:										
					MN Unique Well No.:	00165578	00165578	00165578	00165578	00165588	00165588	00165588	00165588	00165588	00165588
					Aquifer:	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter
					STS/AECOM Sample ID:										
					MDH Sample No:		200710996	200811246	200912063			200710981	200811245	200912062	13D1907-02
					Sample Date:	5/4/2006	5/10/2007	5/6/2008	5/12/2009	5/9/2005	5/4/2006	5/10/2007	5/6/2008	5/11/2009	4/29/2013
					Notes:	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by AECOM
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards											
Benzene	ug/L	2	HRL	5	MCL	0.2 J	0.2	<0.2	0.3	0.4	0.4	0.3	<0.2	0.3	0.29
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.10
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.555 J	<1.0	<1.0	< 1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.20
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	0.4	<0.2	0.3	0.62
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.50
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	<0.2	<0.2	<0.2	18	5	5.4	3.8	0.3	4.2	4.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1	<0.1	1.1	1.5	1.8	1.1	<0.1	1.4	1.2
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	7.3	1.7	11	0.6	<0.2	1.6	< 0.20
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<10	<10	<10	<10	<10	< 10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	0.14 J	<0.5	0.2 J	<0.5	<0.5	<0.5	<0.5	0.2 J	0.40
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.20
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	0.05 J	<0.1	<0.1	18	0.8	18	0.6	<0.1	1.9	< 0.10
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.50
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	<0.2	<0.2	0.8	2.8	2.1	3.3	0.15 J	3.2	6.3
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.20
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	< 0.30
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Well Name:	W409	W409	W409	W409	W409	W410	W410	W410	W410
CWI Name:						W-410 (USGS W-24)	W-410 (USGS W-24)	W-410 (USGS W-24)	W-410 (USGS W-24)
MN Unique Well No.:	00432036	00432036	00432036	00432036	00432036	00434042	00434042	00434042	00434042
Aquifer:	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter
STS/AECOM Sample ID:									
MDH Sample No:		200610306	200710967		200912072	200424655	200610294	200712750	200911601
Sample Date:	5/3/2005	5/3/2006	5/8/2007	5/13/2008	5/12/2009	8/23/2004	5/1/2006	5/22/2007	5/4/2009
Notes:	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	PAH Split Sample	City of St. Louis Park Data	PAH Split Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants				Pace Sample No.: W409-					
Benzene	19.0	1.8	6.7	6	1.0	0.9	1.6	2.8	4.4
n-Butylbenzene	<0.5	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	<0.5	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	<0.5	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	<0.1	<10	<0.1	<5.00	<0.1	<0.1	<0.1	<0.1	<0.1
Chloromethane	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<0.2	<10	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	<0.2	<10	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	<0.2	<10	<0.2	<1.00	<0.2	<0.5	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene (DCE)	2.4	1.3	1.3	0.872 J	0.7	0.6	2.4	3.5	4.7
trans-1,2-Dichloroethene	9.1	3.6	2.7	1.57	1.1	0.4	1.0	1.6	2.1
Dichlorodifluoromethane	<0.1	<10	<1.0	<1.00	<1.0	<0.5	<1.0	<1.0	<1.0
Dichlorofluoromethane	<0.5	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	21	1.8	7.7	5.73	0.4 J	0.4	1.3	3	5.5
Isopropylbenzene	1.7	<10	0.7	0.596 J	<0.5	<0.5	<0.5	0.28 J	0.5
p-Isopropyltoluene	<0.5	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	<0.5	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<1.0	<10	1.5	0.804 J	<1.0	<0.5	<1.0	<1.0	4.4
n-Propylbenzene	<0.5	<10	0.25 J	<1.00	<0.5	<0.5	<0.5	0.21 J	<0.5
Styrene	<0.5	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	<0.2	0.3	<0.2	<1.00	<0.2	0.4	0.3	0.3	0.1 J
Tetrahydrofuran	<10	<10	<10	<5.00	<10	<10	<10	<10	<10
Toluene	0.7	0.4 J	0.28 J	<1.00	<0.5	<0.2	<0.5	<0.5	0.1 J
1,1,1-Trichloroethane	<0.2	<10	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	0.4	4.7	<0.1	<1.00	<0.1	3.2	2.3	2.6	3.4
1,2,4-Trimethylbenzene	3.4	<10	<0.5	<1.00	<0.5	<0.5	<0.5	0.43 J	1.5
1,3,5-Trimethylbenzene	1.3	<10	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	0.5	0.2 J	0.3	<1.00	<0.2	<0.5	0.1 J	0.17 J	0.3
o-Xylene	7.7	0.8	2.4	1.66	<0.2	<0.2	<0.2	0.6	1.3
p&m-Xylene	1.4	0.5	0.3	<2.00	<0.3	<0.2	<0.3	0.12 J	0.5
Xylene (total)	9.1	1.3	2.7	3.66	<0.5	<0.4	<0.5	0.72	1.8

Notes:

Bold face - detect

0.5 - framed cell - detected concentration excee
18 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr

Table 4
Monitoring Well Groundwater Analytical Results- St. Peter Sandstone Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						W411	W411	W411	W411	W411	W412	W412D	W412	W412	W412	W412	R. & A. PERRIN	J. BLOOM	J. BLOOM	J. REICHERT	P. & R. LARSON
CWI Name:																	WILLIAM JESUUP	JIM BLOOM	JIM BLOOM	ROY HAWKINSON	JOHN ANDERSON
MN Unique Well No.:						00432035	00432035	00432035	00432035	00432035	00432034	00432034	00432034	00432034	00432034	00432034	00206590	00203130	00203130	00206488	00206548
Aquifer:						St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter	St. Peter
STS/AECOM Sample ID:																	5608 Highland Rd	6825 Valley View Rd	6825 Valley View Rd	4800 Bywood St. W.	5524 Glengarry Pkwy
MDH Sample No:							200610310	200710995	200811244	200912060			200610309	200710994	200811243	200912057	200532477	200532478	200532478	200532480	200531633
Sample Date:						5/9/2005	5/4/2006	5/10/2007	5/6/2008	5/11/2009	5/9/2005	5/9/2005	5/4/2006	5/10/2007	5/5/2008	5/11/2009	11/30/2005	11/30/2005	11/30/2005	11/29/2005	11/19/2005
Notes:						PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample, duplicate	Spigot Water Sample	Spigot Water Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards																	
Benzene	ug/L	2	HRL	5	MCL	**0.2**	**0.3**	**0.4**	**0.2**	<0.2	**1.1**	**1.1**	**1.0**	**0.16 J**	**0.1 J**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	**0.6**	**0.3**	**0.2**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**0.5**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**3.5**	**0.6**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.4 J**	**0.6**	**0.4 J**	**0.6**	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.11 J**	<0.2	**2.0**	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	<0.1	<0.1	**0.055 J**	<0.1	<0.1	<0.1	<0.1	**0.1 J**	**0.083 J**	<0.1	**3.4**	<0.1	<0.1	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	**2.6**	**1.0**	**1.1**	**1.6**	<0.2	<0.2	<0.2	<0.2	<0.2	**0.6**	<0.2	<0.2	<0.2	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect

0.5	- framed cell - detected concentration excee
18	- shaded cell - detected concentration excee
135	- increasing trend in concentrations
37	- decreasing trend in concentrations

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr

Table 4
Monitoring Well Groundwater Analytical Results - Prairie du Chien / Jordan Aquifer Wells Edina Groundwater VOC Contamination Study – Continuation in 2013 AECOM Project 60283395

Well Name:						W W WOLD & L M WOLD	PERRY A & CINDY L WITKIN	Mike Kelly 952-922-9012	Mike Kelly 952-922-9012	PETER M & ELLEN B KAISER	JASON F BROWN	Peter M Schimit/Kathi J. Wright	Peter M Schimit/Kathi J. Wright
CWI Name:						JOHN ANDERSON	J. J. LIEBENBERG	EDINA COUNTRY CLUB NO.1	EDINA COUNTRY CLUB NO.1	FRED SMITH	JOE ELIASON	LEW BONN	LEW BONN
MN Unique Well No.:						00206547	00203620	00232315	00232315	00206502	00206599	00223769	00223769
Aquifer:						Drift-OPCJ	St. Peter-OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
STS/AECOM Sample ID:						PRI. #4	EDINA PRI #1	EDINA CC #1	EDINA CC #1 - Dup	Edina Pri #5	EDINA PRI #2	EDINA PR#3	EDINA PR#3 - Dup
MDH Sample No:						200430253	200429907	200430525	200430526	200431474	200429907	200430251	200430252
Sample Date:						10/27/04	10/22/04	11/01/04	11/01/04	11/10/04	10/22/04	10/27/04	10/27/04
Notes:						Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample, Duplicate	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample, Duplicate
Detected Contaminants		MN Drinking Water Standards		Federal Drinking Water Standards									
Benzene	ug/L	2	HRL	5	MCL	<0.2	<0.2	**0.4**	**0.4**	<0.2	<0.2	<0.2	<0.2
Bromodichloromethane	ug/L	6	HRL	--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	**0.4**	**0.4**	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	<0.2	<0.2	**16**	**16**	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1	**0.7**	**0.7**	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	**1.0**	**1.0**	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	<0.1	<0.1	**1.2**	**1.1**	<0.1	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	<0.2	**2.0**	**2.1**	<0.2	<0.2	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Well Name:	ED2	ED2	ED2	ED2	ED2	ED2 DUP	ED2	ED2	ED3	ED3	ED4	ED4	ED6	ED6	ED6
CWI Name:	EDINA 2	EDINA 2	EDINA 2	EDINA 2	EDINA 2	EDINA 2	EDINA 2	EDINA 2	EDINA 3	EDINA 3	EDINA 4	EDINA 4	EDINA 6	EDINA 6	EDINA 6
MN Unique Well No.:	00208399	00208399	00208399	00208399	00208399	00208399	00208399	00208399	00240630	00240630	00200561	00200561	00200564	00200564	00200564
Aquifer:	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
STS/AECOM Sample ID:	EDINA #2	EDINA #2 - Dup							EDINA #3		EDINA #4		EDINA #6		
MDH Sample No:	200429900	200429901	200711648	200810155	200909540	200909546	201005065	13E0012-16	200430255	200611316	200430254	200909542	200429904	200909543	10E0186-07
Sample Date:	10/22/04	10/22/04	05/15/07	05/01/08	04/27/09	04/27/09	03/15/10	04/30/13	10/27/04	05/09/06	10/27/04	04/27/09	10/22/04	04/27/09	05/27/10
Notes:	Spigot Water Sample	Spigot Water Sample, Duplicate	PAH Split Sample (E2)	PAH Split Sample (E2)	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Sampled by AECOM	Spigot Water Sample	PAH Split Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample
Benzene	<0.2	<0.2	0.11 J	**0.3**	**0.6**	**0.6**	**0.2**	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
Bromodichloromethane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<0.2	<0.2	<0.2	**0.1 J**	**0.19 J**	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	<0.2	<0.2	<0.2	<0.2	**0.17 J**	**0.17 J**	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	<0.5	<0.5	<0.2	<0.5	**0.3 J**	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.2	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene (DCE)	**1.8**	**2.0**	**3.7**	**9.9**	**23**	**23**	**9.5**	**9.8**	<0.2	<1.0	<0.2	<0.2	<0.2	**1.6**	**0.11 J**
trans-1,2-Dichloroethene	<0.1	**<0.1**	**0.2**	**0.5**	**1.1**	**1.1**	**0.5**	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	<1.0	<1.0	0.28 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	<0.5	<0.5	<0.5	**0.6**	**1.4**	**1.3**	**0.47 J**	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	<0.5	<0.5	<0.5	<0.5	**0.8**	<0.5	<0.5	<2.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	<10	<10	<10	<10	<10
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,2-Trichloroethane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	**0.2**	**0.2**	**0.3**	**0.5**	**0.8**	**0.8**	**0.2**	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	**0.10 J**	<0.1
1,2,4-Trimethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	**0.4**	**0.4**	**0.6**	**1.4**	**3.8**	**3.6**	**1.4**	**1.5**	<0.2	<1.0	<0.2	<0.2	<0.2	**0.2**	<0.2
o-Xylene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1.0	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect

2.0 - framed cell - detected concentration exceeds MN drinking water criteria
2.1 - shaded cell - detected concentration exceeds Federal drinking water criteria
135 - increasing trend in concentrations
37 - decreasing trend in concentrations
D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Did not meet QC acceptance criteria - result is estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of Health (last update: May 18, 2010)
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results - Prairie du Chien /
Jordan Aquifer Wells Edina Groundwater VOC Contamination Study –
Continuation in 2013 AECOM Project 60283395

Well Name:						ED6	ED7	ED7	ED7	ED7	ED7	ED7	ED7	ED7-DUP	ED7	ED7-DUP	ED7	ED7-DUP	ED7	ED7-DUP	ED9	ED13	ED13	ED13	ED13-DUP	ED13	ED13	ED13
CWI Name:						EDINA 6	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 7	EDINA 9	EDINA 13	EDINA 13	EDINA 13	EDINA 13	EDINA 13	EDINA 13	EDINA 13
MN Unique Well No.:						00200564	00206474	00206474	00206474	00206474	00206474	00206474	00206474	00206474	00206474	00206474	00206474	00206474	00206474	00206474		00203613	00203613	00203613	00203613	00203613	00203613	00203613
Aquifer:						OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ		OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
STS/AECOM Sample ID:						EDINA #6		ED7#1 360'	ED7#2 400'	ED7#6 520'	ED7#3 450'	ED7#4 500'	410'	410'	440'	440'	440'	440'				EDINA #13						
MDH Sample No:						13E0012-17		200501036	200501037	200501041	200501038	200501039	200836027	200836028	200909550	200909551	10E0186-03	10E0186-04	13E0012-18	13E0012-20	201005030	200429903	200611314	200711645	200711646	200810163	200909359	10E0186-06
Sample Date:						04/30/13	01/26/04	01/20/05	01/20/05	01/20/05	01/20/05	01/20/05	12/15/08	12/15/08	04/27/09	04/27/09	05/27/10	05/27/10	04/30/13	04/30/13	03/15/10	10/22/04	05/09/06	05/15/07	05/15/07	05/01/08	04/27/09	05/27/10
Notes:						Sampled by AECOM	Spigot Water Sample	Discrete Sample	Discrete Sample	Discrete Sample, Duplicate	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Sampled by AECOM	Sampled by AECOM	Spigot Water Sample	Spigot Water Sample	PAH Split Sample	PAH Split Sample (E13)	PAH Split Sample (W13DUP)	PAH Split Sample (W13DUP)	Spigot Water Sample	Spigot Water Sample
Detected Contaminants		MN Drinking Water Standards		Federal Drinking Water Standards																								
Benzene	ug/L	2	HRL	5	MCL	<1.0	<0.2	<0.2	**0.8**	**0.8**	**0.8**	**0.8**	<0.2	<0.2	<0.2	<0.2	**0.11 J**	**0.12 J**	<1.0	<1.0	<0.2	<0.2	<1.0	**0.18 J**	**0.19 J**	**0.2**	**0.1 J**	**0.20 J**
Bromodichloromethane	ug/L	6	HRL	--		<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	**0.1**	<1.0
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.5 J**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		<1.0	<0.2	<0.2	**0.6**	**0.6**	**0.6**	**0.6**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	**0.16 J**	**0.16 J**	**0.2**	<0.2	**0.24**
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.5	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	<1.0	<0.2	<0.2	39	38	37	37	1.0	1.0	<0.2	<0.2	2.1	2.0	**31**	**31**	<0.2	**0.8**	**3.0**	**3.6**	**3.8**	**5.4**	**2.4**	**4.5**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<1.0	<0.1	<0.1	**3.7**	**3.3**	**3.2**	**3.4**	<0.1	<0.1	<0.1	<0.1	**0.082 J**	**0.090 J**	**1.5**	**1.4**	<0.1	<0.1	<1.0	**0.2**	**0.2**	**0.3**	**0.1**	**0.25**
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.22 J**	**0.23 J**	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<1.0	<0.5	<0.5	**1.7**	**1.6**	**1.7**	**1.7**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	**0.3 J**	<0.5	**0.26 J**
Ethylbenzene	ug/L	50	HBV	700	MCL	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<1.0	<0.5	3.3	0.8	0.9	1.4	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	<1.0	<0.1	<0.1	2.3	2.2	2.3	2.2	<0.1	<0.1	<0.1	<0.1	0.13	0.14	<1.0	<1.0	<1.0	**0.1**	<1.0	**0.4**	**0.4**	**0.4**	**0.1**	**0.33**
1,2,4-Trimethylbenzene	ug/L	--		--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<1.0	**3.9**	<0.2	**3.3**	**3.2**	**3.4**	**3.5**	<0.2	<0.2	<0.2	<0.2	**0.30**	**0.28**	**4.1**	**3.6**	<0.2	<0.2	<1.0	**0.5**	**0.4**	**0.6**	**0.3**	**0.55**
o-Xylene	ug/L	300	HRL	--		<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1.0	<1.0	<0.3	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect

2.0 - framed cell - detected concentration excee
2.1 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Did not meet QC acceptance criteria - result is estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr.

Table 4
Groundwater Analytical Results - Prairie du Chien / Jordan Aquifer Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						ED13	ED15	ED15	ED15	ED15	ED15	ED15	ED15	EDINA 16	ED17	ED17	ED TEST	ED TEST	ED TEST	ED TEST	ED TEST	ED TEST	ED TEST	ED TEST	MILASTAR CORPORAT. (W29)	MILASTAR CORPORAT. (W29)	MILASTAR CORPORAT. (W29)	MILASTAR CORPORAT. (W29)
CWI Name:						EDINA 13	EDINA 15	EDINA 15	EDINA 15	EDINA 15	EDINA 15	EDINA 15	EDINA 15	EDINA 16	EDINA 17	EDINA 17									FLAME INDUSTRIES	FLAME INDUSTRIES	FLAME INDUSTRIES	FLAME INDUSTRIES
MN Unique Well No.:						00203613	00207674	00207674	00207674	00207674	00207674	00207674	00207674	00203101	00200914	00200914	00748656	00748656	00748656	00748656	00748656	00748656	748656	00748656	00206454	00206454	00206454	00206454
Aquifer:						OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
STS/AECOM Sample ID:							EDINA #15							EDINA 16	EDINA #17		ED TEST #1 280'	ED TEST #1 330'	ED TEST #1 400'	ED TEST #1 440'	310'	330'	330'	310'	FI 1	FI 2		
MDH Sample No:						13E0012-19	200429907		200711647	200810157	200909538	201005055	13F0048-02	200531627	200430256	200909541	200706710	200706712	200706714	200706716	2008036026	200909549	10E0186-02	13E0103-08	200432021	200432022	200612185	200711642
Sample Date:						04/30/13	10/22/04	05/09/06	05/15/07	05/01/08	04/27/09	03/15/10	06/03/13	11/10/05	10/27/04	04/27/09	04/05/07	04/05/07	04/05/07	04/05/07	12/15/08	04/27/09	05/27/10	05/01/13	11/19/04	11/19/04	05/16/06	05/14/07
Notes:						Sampled by AECOM	Spigot Water Sample	PAH Split Sample	PAH Split Sample (E15)	PAH Split Sample (E15)	Spigot Water Sample	Spigot Water Sample	Sampled by AECOM	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	Sampled by AECOM	Spigot Water Sample	Spigot Water Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standards		Federal Drinking Water Standards																								
Benzene	ug/L	2	HRL	5	MCL	<1.0	<0.2	<1.0	**0.11 J**	**0.1 J**	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	**0.9**	**0.9**	<1.0	**0.14 J**
Bromodichloromethane	ug/L	6	HRL	--		<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2
n-Butylbenzene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Chlorodibromoethane	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Chloroethane	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Chloroform	ug/L	30	HRL	--		<1.0	<0.1	<1.0	<0.1	**0.1**	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.8	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	**<1.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		<1.0	**1.3**	**1.3**	**1.3**	**1.9**	**1.4**	**1.3**	2.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	**0.5**	**0.5**	<1.0	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<1.0	**1.0**	**1.0**	**0.8**	**0.9**	**0.7**	**0.6**	<1.0	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	**0.5**	<0.5	<1.0	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**3.2**	**7.1**	**5.7**	**6.6**	**8.3**	**5.6**	**4**	**5.6**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	**47**	**46**	**2.9**	**3.1**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<1.0	**0.4**	<1.0	**0.3**	**0.4**	**0.3**	**0.2**	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	2.4	2.4	<1.0	0.2
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	1.2	<1.0	<0.1
Dichlorofluoromethane	ug/L	--		--		<1.0	<0.5	<1.0	**0.26 J**	**0.3 J**	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	2.4	2.4	0.5 J	0.6
Ethylbenzene	ug/L	50	HBV	700	MCL	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
p-Isopropyltoluene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<2.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**12**	**12**	<0.5	<2.0	<0.5	<0.5	<1.0	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Styrene	ug/L	--		100	MCL	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	<10
Toluene	ug/L	200	HBV	1000	MCL	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	**0.3 J**	**0.2 J**	**0.2 J**	**0.2 J**	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<1.0	**1.1**	**0.7 J**	**0.8**	**0.6**	**0.4**	**0.3**	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	<1.0	**1.9**	**2.0**	**1.7**	**2.1**	**1.5**	**1.2**	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	2.9	2.7	0.9 J	0.9
1,2,4-Trimethylbenzene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<1.0	**0.9**	**0.6 J**	**0.6**	**0.8**	**0.6**	**0.3**	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	5.3	5.2	0.95 J	0.8
o-Xylene	ug/L	300	HRL	--		<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2
p&m-Xylene	ug/L	300	HRL	--		<1.0	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1.0	<0.3	<0.3	<1.0	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<2.0	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<2.0	<0.5

Notes:

Bold face - detect
2.0 - framed cell - detected concentration excee
2.1 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations
D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Did not meet QC acceptance criteria - result is estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr

Table 4
Groundwater Analytical Results - Prairie du Chien / Jordan Aquifer Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	HOPKINS 4	HOPKINS 5	HOPKINS 6	HOPKINS 6	HOPKINS 6	HOPKINS 6	HOPKINS 6	MINNETONKA 6	MINNETONKA 6	MINNETONKA 13	MINNETONKA 13A	SLP4	SLP4	SLP4	SLP4	SLP4-DUP	SLP4	SLP4	SLP4	SLP4	SLP5	SLP6	SLP6
					CWI Name:	HOPKINS 4	HOPKINS 5	HOPKINS 6	HOPKINS 6	HOPKINS 6	HOPKINS 6	HOPKINS 6	MINNETONKA 6	MINNETONKA 6	MINNETONKA 13	MINNETONKA 13A	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 4	ST. LOUIS PARK 5	ST. LOUIS PARK 6	ST. LOUIS PARK 6
					MN Unique Well No.:	00204068	00204570	00112228	00112228	00112228	00112228	00112228	00204054	00204054	00205165	00132263	00200542	00200542	00200542	00200542	00200542	00200542	00200542	00200542	00200542	00203196	00206457	00206457
					Aquifer:	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
					STS/AECOM Sample ID:	HOPKINS 4	HOPKINS 5	HOPKINS 6	HOPKINS 10						MTKA 13	MTKA 13A												SLP #6
					MDH Sample No:	200531623	200531626	200531628	200531624	200612186	200810150	200909545	200612187	200810153	200531622	200531625	200423866	200612182	200711644		200810158		200909544	10F0067-01	13E0012-14		200423867	200431473
					Sample Date:	11/10/05	11/10/05	11/10/06	11/10/05	05/16/06	04/30/08	04/27/09	05/16/06	04/30/08	11/10/05	11/10/05	8/16/2004	5/16/2006	5/14/2007	5/1/2008	5/1/2008	Spring 2008	4/27/2009	6/8/2010	4/30/2013	Spring 2008	8/16/2004	11/10/04
					Notes:	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample, Duplicate	PAH Split Sample	PAH Split Sample		PAH Split Sample	PAH Split Sample	Spigot Water Sample	Spigot Water Sample	City of St. Louis Park Data	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Collected by Pace for EPA	Spigot Water Sample	PAH Split Sample	Sampled by AECOM	Collected by Pace for EPA	City of St. Louis Park Data	Spigot Water Sample
Detected Contaminants		MN Drinking Water Standards		Federal Drinking Water Standards																		Pace Sample No.: 0289-50061 SLP04				Pace Sample No.: 0289-50062 SLP05		
Benzene	ug/L	2	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	**0.4**	**0.4**	<1.0	<5.00	**0.5**	<1.0	<1.0	<5.00	**0.8**	**0.8**
Bromodichloromethane	ug/L	6	HRL	--		<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<5.00	<0.2	<1.0	<1.0	<5.00	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<0.1	**0.6**	<5.00	<0.1	<1.0	<1.0	<5.00	<0.1	<0.1
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**5.7**	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	**0.10 J**	**0.1 J**	<1.0	<5.00	**0.1 J**	<1.0	<1.0	<5.00	**1.1**	**1.2**
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	**0.1 J**	<1.0	<5.00	**0.1 J**	<1.0	<1.0	<5.00	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	**0.11 J**	<1.0	<1.0	<5.00	<0.2	<1.0	<1.0	<5.00	<0.5	<0.5
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	<0.2	<0.2	**1.0**	**0.9**	**1.2**	**0.3**	**0.4**	<1.0	**0.4**	<0.2	<0.2	<0.2	**3.5**	**5.4**	**8.7**	**0.7**	<5.00	**13**	**15**	**15**	<5.00	**22**	**24**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1	**0.5**	**0.5**	**0.5 J**	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	**0.5 J**	**0.6**	**0.7**	**<1.0**	<5.00	**0.9**	**0.84 J**	<1.0	<5.00	**1.6**	**1.4**
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.6**	<1.0	**0.273 J**	<1.0	**0.5 J**	<5.00	**0.7 J**	<1.0	<1.0	<5.00	**1.4**	**1.3**
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	**1.4**	**1.5**	**1.2**	**1.2**	**1.2**	<5.00	**1.6**	**1.2**	**1.2**	<5.00	**2.6**	**2.8**
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.2	<1.0	<0.5	<0.5	<0.2	<5.00	<0.5	<1.0	<1.0	<5.00	<0.2	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<5.00	<0.5	<2.0	<2.0	<5.00	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<0.5	<5.00	<1.0	<1.0	<1.0	<5.00	<0.5	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<5.00	<0.2	<1.0	<1.0	<5.00	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<1.0	<10	<10	<1.0	<10	<10	<10	<10	<1.0	<10	<10	<10	<5.00	<10	<10	<1.0	<5.00	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.2	<1.0	<0.5	<0.5	<0.2	<5.00	<0.5	<1.0	<1.0	<5.00	<0.2	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<5.00	<0.2	<1.0	<1.0	<5.00	<0.2	<0.2
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5.00	<0.2	<1.0	<1.0	<5.00	<0.2	<0.2
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	**4.2**	**3.7**	**3.4**	<0.1	<5.00	**2.8**	**1.4**	<1.0	<5.00	**6.6**	**7.2**
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<5.00	<0.5	<1.0	<1.0	<5.00	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	**1.5**	**1.9**	**1.5**	**1.9**	**1.5**	<5.00	**3.1**	**2.9**	**3.2**	<5.00	**4.4**	**4.9**
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<5.00	<0.2	<1.0	<1.0	<5.00	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<0.3	<0.3	<1.0	<0.3	<0.3	<1.0	<0.3	<0.3	<0.3	<0.2	<0.2	<0.3	<0.3	<0.2	<10.00	<0.3	<1.0	<1.0	<10.00	<0.2	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.4	<0.4	<0.5	<0.5	<0.4	<15.00	<0.5	<2.0	<2.0	<15.00	<0.4	<0.5

Notes:

Bold face - detect
2.0 - framed cell - detected concentration excee
2.1 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations
D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Did not meet QC acceptance criteria - result is estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr.

Table 4
Groundwater Analytical Results - Prairie du Chien / Jordan Aquifer Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						SLP6	SLP6	SLP6	SLP6	SLP6	SLP6	SLP6-DUP	SLP6	SLP10	SLP10	SLP10	SLP10	SLP10T	SLP10	SLP14	SLP16	W23	W23	W23	W23	W23	W23	W23-DUP
CWI Name:						ST. LOUIS PARK 6	ST. LOUIS PARK 6	ST. LOUIS PARK 6	ST. LOUIS PARK 6	ST. LOUIS PARK 6	ST. LOUIS PARK 6	ST. LOUIS PARK 6	ST. LOUIS PARK 6	ST. LOUIS PARK 10	ST. LOUIS PARK 10	ST. LOUIS PARK 10	ST. LOUIS PARK 10	ST. LOUIS PARK 10	ST. LOUIS PARK 10	ST. LOUIS PARK NO.14	ST. LOUIS PARK NO. 16	REPUBLIC CREOSOTE DEEP W (W23)	REPUBLIC CREOSOTE DEEP W (W23)	REPUBLIC CREOSOTE DEEP W (W23)	REPUBLIC CREOSOTE DEEP W (W23)	REPUBLIC CREOSOTE DEEP W (W23)	REPUBLIC CREOSOTE DEEP W (W23)	REPUBLIC CREOSOTE DEEP W (W23)
MN Unique Well No.:						00206457	00206457	00206457	00206457	00206457	00206457	00206457	00206457	00206442	00206442	00206442	00206442	00206442	00206442	00227965	00203187	00216050	00216050	00216050	00216050	00216050	00216050	00216050
Aquifer:						OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
STS/AECOM Sample ID:																						REP. CERO.	REP. CERO. 2					
MDH Sample No:							200612188	200711643	200810163	200904987	10F0067-02	10F0067-07	13E0012-15	200423865		200610290	200712747	200810159	200811242	200612178	200612179	200432992	200432993	200610291	200712748	200811239	13E0103-07	13E0103-06
Sample Date:						5/10/2005	5/16/2006	5/14/2007	4/30/2008	3/12/2009	6/3/2010	6/3/2010	4/30/2013	8/16/2004	5/10/2005	5/1/2006	5/22/2007	5/1/2008	5/5/2008	5/15/2006	5/15/2006	12/9/2004	12/9/2004	5/1/2006	5/22/2007	5/5/2008	5/1/2013	5/1/2013
Notes:						PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Sampled by AECOM	City of St. Louis Park Data	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Spigot Water Sample	Spigot Water Sample, Duplicate	PAH Split Sample	PAH Split Sample	PAH Split Sample	Sampled by AECOM	Sampled by AECOM
Detected Contaminants		MN Drinking Water Standards		Federal Drinking Water Standards																								
Benzene	ug/L	2	HRL	5	MCL	**0.9**	**1.0**	**1.0**	**1.5**	**0.8**	**1.6**	**1.6**	**1.5**	<0.2	<0.2	**0.4**	**0.4**	**<0.2**	**0.4**	<1.0	<1.0	1.9	1.9	2.1	1.9	1.2	**1.5**	**1.6**
Bromodichloromethane	ug/L	6	HRL	--		<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<1.0
n-Butylbenzene	ug/L	--		--		<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Chlorodibromoethane	ug/L	--		--		<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Chloroethane	ug/L	--		--		<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Chloroform	ug/L	30	HRL	--		<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<0.1	<0.1	<1.0	<0.1	0.1	<0.1	<1.0	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0	<1.0
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		**1.1**	**1.2**	**1.1**	**1.4**	<0.2	**1.1**	**1.1**	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	**0.3**	**0.3**	**0.7**	**0.6**	**0.9**	<1.0	<1.0
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<1.0	**0.3**	**0.4**	<0.2	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	**0.6**	**0.5**	**0.3**	<1.0	<1.0
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	**0.5 J**	**0.37 J**	**0.7**	<0.2	**0.76 J**	**0.76 J**	<1.0	<0.5	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<0.5	<0.5	**0.8**	**0.7**	**0.4 J**	<1.0	<1.0
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	28	31	35	55	<0.2	65	65	65	**0.7**	**0.4**	**1.8**	**2.2**	**0.3**	**2.0**	**5.6**	<1.0	**42**	**43**	**77.0**	**77.0**	**40.0**	**92 D**	**90 D**
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**1.4**	**1.8**	**2.2**	**2.5**	<0.1	**2.9**	**2.8**	**3.0**	**0.3**	<0.1	**0.9**	**1.4**	**0.09 J**	**1.1**	**1.2**	<1.0	**2.4**	**2.5**	**5.0**	**4.1**	**1.9**	**4.9**	**5.0**
Dichlorodifluoromethane	ug/L	700	HBV	--		1.3	1.1	0.58 J	<0.5	<0.1	2.4	2.7	<1.0	<0.5	<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	**1.1**	**1**	**0.7 J**	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		**2.5**	**3.0**	**2.9**	**3.8**	<0.5	**3.9**	**3.9**	**3.4**	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	2.1	2.1	3.4	3.3	1.6	**2.5**	**2.5**
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<1.0	<0.5	<0.5	**1.0**	<1.0	<1.0	<1.0	<0.2	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
p-Isopropyltoluene	ug/L	--		--		<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<2.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<2.0	<2.0
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	**9.9**	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**5.9**	**<1.0**	<1.0	**1.8**	**1.7**
n-Propylbenzene	ug/L	--		--		<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Styrene	ug/L	--		100	MCL	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<1.0
Tetrahydrofuran	ug/L	--		--		<10	<1.0	<10	<10	<10	<1.0	<1.0	<10	<10	<10	<1.0	<10	<10	<10	<1.0	<1.0	<10	<10	<1.0	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	<1.0	<0.5	<0.5	**1.5**	<1.0	<1.0	<1.0	<0.2	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<1.0
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	**7**	**7.8**	**6.9**	**9.5**	<0.1	**7.2**	**7.3**	**6.5**	<0.1	<0.1	**0.2**	**0.2**	<0.1	**0.2**	<1.0	<1.0	1.2	1.2	2.4	1.7	0.9	<1.0	<1.0
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<1.0	<0.5	<0.5	**0.8**	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<1.0	<0.5	<0.5	**0.4 J**	<1.0	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	<1.0
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	5.1	5.9	3.7	6.8	<0.2	10.0	9.9	9.8	<0.5	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	4.4	4.8	7.9	7.0	3.8	12	11
o-Xylene	ug/L	300	HRL	--		<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<1.0
p&m-Xylene	ug/L	300	HRL	--		<0.3	<1.0	<0.3	<0.3	**0.6**	<1.0	<1.0	<1.0	<0.2	<0.3	<1.0	<0.3	<0.3	<0.3	<1.0	<1.0	<0.3	<0.3	<1.0	<0.3	<0.3	<1.0	<1.0
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<2.0	<0.5	<0.5	**1.3**	<2.0	<2.0	<2.0	<0.4	<0.5	<2.0	<0.5	<0.5	<0.5	<2.0	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<2.0	<2.0

Notes:

Bold face - detect

2.0 - framed cell - detected concentration excee
2.1 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations

D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Did not meet QC acceptance criteria - result is estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr.

Table 4
Groundwater Analytical Results - Prairie du Chien / Jordan Aquifer Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:				W29	W29	THERMOTECH COMPANY	THERMOTECH COMPANY	W48	W48	W48	W48	W48	W48	W48	W48	W48	W70	W119	W119	W119	W119	W119	W119	W119	W119	W119
CWI Name:				FLAME INDUSTRIES	FORMER FLAME INDUSTRIES	THERMOTECH	THERMOTECH 2	METHODIST HOSPITAL	METHODIST HOSPITAL	METHODIST HOSPITAL	METHODIST HOSPITAL	METHODIST HOSPITAL	METHODIST HOSPITAL	METHODIST HOSPITAL	METHODIST HOSPITAL	METHODIST HOSPITAL	PARK THEATRE BLDG	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE	MEADOWBRK GOLF COURSE
MN Unique Well No.:				00206454	00206454	00204574	227132	00216067	00216067	00216067	00216067	00216067	00216067	00216067	216067	00216067	00200539	00216009	00216009	00216009	00216009	00216009	00216009	00216009	00216009	00216009
Aquifer:				OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
STS/AECOM Sample ID:						THERMO 1202	THERMO 1202	Methodist #1	Methodist #2									MDW#1 280'	MDW#2 330'	MDW#3 380'	MDW#4 425'					
MDH Sample No:				200810161	13F0048-04	200531629	200603045	200431471	200431475		200610300	200710993	200810160	200912059	10F0067-03	13E0012-08	200612180	200501042	200501043	200501044	200501045		200612181	200711650	200912058	10F0067-04
Sample Date:				5/1/2008	6/3/2013	11/16/2005	2/10/2006	11/10/04	11/10/04	5/10/2005	5/4/2006	5/10/2007	5/1/2008	5/11/2009	6/3/2010	4/30/2013	5/15/2006	01/20/05	01/20/05	01/20/05	01/20/05	5/10/2005	5/15/2006	5/15/2007	5/11/2009	6/3/2010
Notes:					Sampled by AECOM	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample	Spigot Water Sample, Duplicate	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	Sampled by AECOM	PAH Split Sample	Discrete Sample	Discrete Sample	Discrete Sample	Discrete Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standards	Federal Drinking Water Standards																							
Benzene	ug/L	2 HRL	5 MCL	<0.2	<1.0	<0.2	<0.2	2.3	2.3	2.2	1.9	1.7	2.0	2.1	1.8	<10	<1.0	<0.2	<0.2	<0.2	<0.2	2.1	1.9	1.3	0.8	0.73 J
Bromodichloromethane	ug/L	6 HRL	--	<0.2	<1.0	**0.3**	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<10	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0
n-Butylbenzene	ug/L	--	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Chlorodibromoethane	ug/L	--	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Chloroethane	ug/L	--	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Chloroform	ug/L	30 HRL	--	<0.1	<1.0	**0.6**	<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<10	<1.0	**1.8**	**1.7**	**1.7**	**1.7**	<1.0	<0.1	<0.1	<0.1	<1.0
Chloromethane	ug/L	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	**<1.0**	**<1.0**	**<1.0**	**<1.0**	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--	--	**0.6**	<1.0	<0.2	<0.2	**1**	**1**	**0.8**	**0.8**	**0.7**	**1.0**	**0.9**	<1.0	<10	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	**0.9 J**	**1.0**	**1.6**	**1.5**
1,2-Dichloroethane	ug/L	4 HRL	5 MCL	<0.2	<1.0	<0.2	<0.2	**1**	**1**	**0.9**	**0.9**	**0.8**	**1.0**	**1.1**	<1.0	<10	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	**0.5**	**0.4**	<1.0
1,1-Dichloroethene	ug/L	200 HRL	7 MCL	<0.5	<1.0	<0.5	<0.5	**1.4**	**1.3**	<0.2	**1.2**	**1.1**	**1.3**	**1.5**	**1.3**	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	**0.9 J**	**0.7**	**0.45 J**	<1.0
cis-1,2-Dichloroethene (DCE)	ug/L	50 HRL	70 MCL	**4.2**	<1.0	<0.2	<0.2	**100.0**	**110.0**	**124.0**	**100 RC**	**115.0**	**140 RC**	**130 RC**	**190.0**	**140 D**	<1.0	1.8	2.3	3.8	4.7	<1.0	**95.0**	**74.0**	48.0	50.0
trans-1,2-Dichloroethene	ug/L	100 HRL	100 MCL	**0.2**	<1.0	<0.1	<0.1	**7.3**	**7.9**	**6.7**	**7.9**	**7.4**	**8.3**	**10**	**9.4**	<10	<1.0	**0.2**	**0.2**	**0.4**	**0.4**	<1.0	**4.6**	**3.9**	**2.3**	**2.2**
Dichlorodifluoromethane	ug/L	700 HBV	--	<1.0	<1.0	<1.0	<1.0	**3**	**2.9**	**2.6**	**1.3**	**1.2**	**1.8 QR**	**2.6**	**3.2**	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.3**	**0.76 J**	**0.7 J**	**0.75 J**
Dichlorofluoromethane	ug/L	--	--	**0.3 J**	<1.0	<0.5	<0.5	**5.7**	**5.7**	**4.3**	**4**	**4**	**4.6**	**4.8**	**3.5**	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	**4.0**	**3.3**	**2.0**	**1.5**
Ethylbenzene	ug/L	50 HBV	700 MCL	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Isopropylbenzene	ug/L	300 HRL*	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
p-Isopropyltoluene	ug/L	--	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Methylene chloride (Dichloromethane)	ug/L	5 HRL	5 MCL	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<2.0	<20	<1.0	**1.1**	**1.1**	**1.0**	**1.1**	<1.0	<0.5	<0.5	<0.5	<2.0
Naphthalene	ug/L	300 HRL	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.8 J**	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Styrene	ug/L	--	100 MCL	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Tetrachloroethene (PCE)	ug/L	5 HRL	5 MCL	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	**0.5**	**0.17 J**	<0.2	<0.2	<1.0	<10	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0
Tetrahydrofuran	ug/L	--	--	<10	<10	<10	<10	<10	<10	<10	<1.0	<10	<10	<10	<10	<100	<1.0	**98**	**91**	**97**	**95**	<1.0	<10	<10	<10	<10
Toluene	ug/L	200 HBV	1000 MCL	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	**13**	**8.8**	**8.7**	**6.5**	**0.7**	<0.5	<0.5	<0.5	<1.0
1,1,1-Trichloroethane	ug/L	9000 HRL	200 MCL	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<10	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0
1,1,2-Trichloroethane	ug/L	3 HRL	5 MCL	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	**0.4**	<1.0	<10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0
Trichloroethene (TCE) **	ug/L	0.4 HRL	5 MCL	**0.6**	<1.0	<0.1	<0.1	**6.3**	**6.3**	**5**	**5.4**	**4.7**	**5.1**	**4.9**	**3.6**	<10	<1.0	<0.1	**0.1**	**0.2**	**0.2**	5	4	3.3	1.7	1
1,2,4-Trimethylbenzene	ug/L	--	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
1,3,5-Trimethylbenzene	ug/L	100	--	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0	<10	<1.0	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<1.0
Vinyl Chloride **	ug/L	0.2 HRL	2 MCL	**0.7**	<1.0	<0.2	<0.2	**16.0**	**16.0**	**15.0**	**12.0**	**11.0**	**15.0**	**22.0**	**20.0**	**17 D**	<1.0	**0.2**	<0.2	**0.3**	**0.4**	13.0	10.0	6.5	5.9	5.1
o-Xylene	ug/L	300 HRL	--	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<10	<1.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0
p&m-Xylene	ug/L	300 HRL	--	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<1.0	<0.3	<0.3	<0.3	<1.0	<10	<1.0	<0.3	<0.3	<0.3	<0.3	<1.0	<0.3	<0.3	<0.3	<1.0
Xylene (total)	ug/L	300 HRL	10000 MCL	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<2.0	<20	<2.0	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<2.0

Notes:

Bold face - detect

2.0 - framed cell - detected concentration excee
2.1 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations
D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Did not meet QC acceptance criteria - result is estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr

Table 4
Groundwater Analytical Results - Prairie du Chien / Jordan Aquifer Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Well Name:						W401	W401	W401	W401	W402	W402	W402	W402	W403	W403	W403	W406
CWI Name:										WAVELAND PARK W-402	WAVELAND PARK W-402	WAVELAND PARK W-402	WAVELAND PARK W-402	W403	W403	W403	MINIKAHDA CLUB NO.1
MN Unique Well No.:						00453805	00453805	00453805	00453805	00508116	00508116	00508116	00508116	00439751	00439751	00439751	00200534
Aquifer:						OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ	OPCJ
STS/AECOM Sample ID:																	
MDH Sample No:						200611317	200711649	200810149	10F0067-05		200612183	200711641	200810154	200612184	200711640	200810162	200612175
Sample Date:						5/9/2006	5/15/2007	4/30/2008	6/8/2010	5/10/2005	5/16/2006	5/14/2007	4/30/2008	5/16/2006	5/14/2007	5/1/2008	5/15/2006
Notes:						PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standards		Federal Drinking Water Standards													
Benzene	ug/L	2	HRL	5	MCL	<1.0	**0.12 J**	**0.1 J**	<1.0	**0.5**	<1.0	**0.2**	**0.1 J**	<1.0	<0.2	<0.2	<1.0
Bromodichloromethane	ug/L	6	HRL	--		<1.0	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
n-Butylbenzene	ug/L	--		--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Chlorodibromoethane	ug/L	--		--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Chloroethane	ug/L	--		--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Chloroform	ug/L	30	HRL	--		<1.0	<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0
Chloromethane	ug/L	--		--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/L	--		--		**6.9**	**7.9**	**9.0**	**5.1**	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<1.0	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	**0.8 J**	**0.7**	**0.9**	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**18**	**7.8**	**10**	**7.3**	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	**0.8 J**	**0.4**	**0.4**	<1.0	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<0.1	<1.0	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0
Dichlorofluoromethane	ug/L	--		--		**0.6 J**	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Ethylbenzene	ug/L	50	HBV	700	MCL	<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Isopropylbenzene	ug/L	300	HRL*	--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
p-Isopropyltoluene	ug/L	--		--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	**1.0**	<0.5	<1.0
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<1.0	<0.5	<0.5	<2.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Styrene	ug/L	--		100	MCL	<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<1.0	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
Tetrahydrofuran	ug/L	--		--		<1.0	<10	<10	<10	<10	<1.0	<10	<10	<1.0	<10	<10	<1.0
Toluene	ug/L	200	HBV	1000	MCL	<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	0.12 J	**0.12 J**	<1.0	**0.096 J**	<0.5	<1.0
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<1.0	**0.2**	**0.1 J**	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
1,1,2-Trichloroethane	ug/L	3	HRL	5	MCL	<0.2	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
Trichloroethene (TCE) **	ug/L	0.4	HRL	5	MCL	**2.7**	**2.7**	**2.4**	**1.4**	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0
1,2,4-Trimethylbenzene	ug/L	--		--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
1,3,5-Trimethylbenzene	ug/L	100		--		<1.0	<0.5	<0.5	<1.0	<0.5	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	**1.1**	**0.3**	**0.5**	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
o-Xylene	ug/L	300	HRL	--		<1.0	<0.2	<0.2	<1.0	<0.2	<1.0	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0
p&m-Xylene	ug/L	300	HRL	--		<1.0	<0.3	<0.3	<1.0	<0.3	<1.0	<0.3	<0.3	<1.0	<0.3	<0.3	<1.0
Xylene (total)	ug/L	300	HRL	10000	MCL	<2.0	<0.5	<0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0	<0.5	<0.5	<2.0

Notes:

Bold face - detect

2.0 - framed cell - detected concentration excee
2.1 - shaded cell - detected concentration excee
135 - increasing trend in concentrations
37 - decreasing trend in concentrations
D - Report Limit changed due to sample dilution
J - The analyte positively identified, below the report level, estimated
QR - Did not meet QC acceptance criteria - result is estimated
RC - Report level was changed due to sample dilution
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of I
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentr

Table 4
Monitoring Well Groundwater Analytical Results - Deep Aquifers Wells
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

					Well Name:	W105	W105	W105	SLP11	SLP11	SLP12	SLP13	SLP13
					CWI Name:							ST. LOUIS PARK 13	ST. LOUIS PARK 13
					MN Unique Well No.:	00200979	00200979	00200979	00206439	00206439	00206456	00206424	00206424
					Aquifer:	Ironton-Galesville	Ironton-Galesville	Ironton-Galesville	Mt.Simon-Hinckley	Mt.Simon-Hinckley	Mt.Simon-Hinckley	Mt.Simon-Hinckley	Mt.Simon-Hinckley
					STS/AECOM Sample ID:								
					MDH Sample No:	200610289	200811240	200904989	200612176	200712741	200712742	200612177	200712743
					Sample Date:	05/01/06	05/05/08	05/05/09	05/15/06	05/21/07	05/21/07	05/15/06	05/21/07
Detected Contaminants					Notes:	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample	PAH Split Sample
Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards									
Benzene	ug/L	2	HRL	5	MCL	0.8	1.2	57 RC	<0.2	<0.2	<0.2	<0.2	<0.2
Bromodichloromethane	ug/L	6	HRL	--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethane	ug/L	--		--		<0.2	**0.8**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	**0.2**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	**0.3 J**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene (DCE)	ug/L	50	HRL	70	MCL	**0.3**	**35**	**100 RC**	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	**1.6**	**36**	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<0.1	**1.4**	**4.4 QR**	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	**1.1**	<0.5	**75 RC**	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL*	--		<0.5	<0.5	**9.3**	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	**1.6**	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		**7.1**	<1.0	**2700 RC**	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	**2.7**	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	**1.5**	<0.5	**2.3**	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	<0.1	**0.8**	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		**0.9**	<0.5	**36 RC**	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		**0.4 J**	<0.5	**10**	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	**6.6**	**92 RC**	<0.2	<0.2	<0.2	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		**0.5**	<0.2	**46 RC**	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		**1.1**	<0.3	**73 RC**	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	**1.6**	<0.5	**119 RC**	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect

1.4 - framed cell - detected concentration exceeds MN drinking water criteria

6.6 - shaded cell - detected concentration exceeds Federal drinking water criteria

* - due to new research, the MDH no longer recommends the HRL value

HBV - Health Based Values derived by Minnesota Department of Health

HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of Health

D - Report Limit changed due to sample dilution

MCL - Maximum Contaminant Level (USEPA)

QR - Did not meet QC acceptance criteria - result is estimated

RC - Report level was changed due to sample dilution

** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results - QA/QC Samples
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards											
Well Name:															
CWI Name:															
MN Unique Well No.:															
Aquifer:															
STS/AECOM Sample ID:						TRIP BLNK	TRIP BLNK	TRIP BLNK	TRIP BLNK	TRIP BLNK	TRIP BLNK	TRIP BLNK	TRIP BLNK	TRIP BLNK	TRIP BLNK
MDH Sample No:						200429907	200430257	200430527	200431475	200432023	200432998	200514583	200514040	200531630	200532483
Sample Date:						10/22/2004	10/27/2004	11/1/2004	11/10/2004	11/19/2004	12/9/2004	6/8/2005	6/2/2005	11/22/2005	12/2/2005
Notes:															
Benzene	ug/L	2	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	ug/L	#N/A	HRL	#N/A	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL	--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	**0.9**	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	<0.1	<0.1	<0.1	<0.1	<0.1	**0.4**	<0.1	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Detected Contaminants									
Well Name:							P307FB	W136FB	
CWI Name:									
MN Unique Well No.:									
Aquifer:									
STS/AECOM Sample ID:	FIELD BLANK	FIELD BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK	TRIP BLANK
MDH Sample No:	200501040	20054044	200514052	200514582	200514039				
Sample Date:	1/20/2005	6/3/2005	6/3/2005	6/8/2005	6/2/2005	5/9/2005	4/25/2005	4/26/2005	4/26/2005
Notes:						PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling
Benzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	**1.0**	**0.1**	<0.1	**0.1**	**0.7**	<0.1	<0.1	**0.1**	**0.1**
1,1-Dichloroethane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1
Dichlorofluoromethane	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE)**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-Xylene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by Minnesota Department of Health (last update: May 18, 2010)
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results - QA/QC Samples
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Detected Contaminants		MN Drinking Water Standard		Federal Drinking Water Standards																				
Well Name:								TB1SW001																
CWI Name:																								
MN Unique Well No.:																								
Aquifer:																								
STS/AECOM Sample ID:						TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK		FIELD BLANK	FIELD BLANK	TRIP BLANK	TRIP BLANK	P309 FB	P309 FB DUP	TRIP BLANK	TRIP BLANK
MDH Sample No:						200612189	200610295	200611313	200710999	200711651	200712740	200712751	200725302	200810163	200811247		2008036025	200909548	200811247	200911631	200911613	200911614	200909547	200912073
Sample Date:						5/16/2006	5/16/2006	5/8/2006	5/7/2007	5/15/2007	5/21/2007	5/22/2007	8/21/2007	5/1/2008	5/6/2008	4/28/2008	12/15/2008	4/27/2009	5/6/2008	5/8/2009	5/5/2009	5/5/2009	4/27/2009	5/12/2009
Notes:						PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	Collected by Pace for EPA	Collected by Pace for STS/MPCA	Collected by Pace for AECOM/MPCA	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	Spigot Water Sampling	PAH Split Sampling
																For samples collected on 4/28-29/08		For samples collected on 4/27/09						
Benzene	ug/L	2	HRL	5	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
n-Butylbenzene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromoethane	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	ug/L	30	HRL	--		<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5.00	**0.8**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethane	ug/L	--		--		<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
cis-1,2-Dichloroethene	ug/L	#N/A	HRL	#N/A	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	50	HBV	700	MCL	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	ug/L	300	HRL	--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
p-Isopropyltoluene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	**12**	**13**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	ug/L	--		100	MCL	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tetrahydrofuran	ug/L	--		--		<1.0	<10	<1.0	<10	<10	<10	<10	<10	<10	<10	<5.00	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	ug/L	--		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ug/L	100		--		<1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-Xylene	ug/L	300	HRL	--		<1.0	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p&m-Xylene	ug/L	300	HRL	--		<1.0	<0.3	<1.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.00	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	ug/L	300	HRL	10000	MCL	<2.0	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<3.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Bold face - detect
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by
Minnesota Department of Health (last update: May 18, 2010)
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than
HRL concentration

Table 4
Monitoring Well Groundwater Analytical Results- QA/QC Samples
Edina Groundwater VOC Contamination Study – Continuation in 2013
AECOM Project 60283395

Detected Contaminants						FIELD BLANK	TRIP BLANK	FIELD BLANK	TRIP BLANK	TRIP BLANK	ERB-3	TRIP BLANK	ERB-2	TRIP BLANK	FB-1	ERB-1	TRIP BLANK	TRIP BLANK
		Well Name:																
		CWI Name:																
		MN Unique Well No.:																
		Aquifer:																
		STS/AECOM Sample ID:				FIELD BLANK	TRIP BLANK	FIELD BLANK	TRIP BLANK	TRIP BLANK	ERB-3	TRIP BLANK	ERB-2	TRIP BLANK	FB-1	ERB-1	TRIP BLANK	TRIP BLANK
		MDH Sample No:				10E0186-01	10E0186-08	10F0067-06	10F0067-08	13E0103-01	13E0103-05	13E0012-05	13E0012-02	13E0169-01	13E0169-02	13D1907-09	13D1907-10	13F0048-01
		Sample Date:				5/27/2010	5/27/2010	6/3/2010	6/3/2010	5/1/2013	5/1/2013	4/30/2013	4/30/2013	5/2/2013	5/2/2013	4/29/2013	4/29/2013	6/3/2013
		Notes:				PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	PAH Split Sampling	AECOM	AECOM	AECOM	AECOM	AECOM	AECOM	AECOM	AECOM	AECOM
		MN Drinking Water Standard		Federal Drinking Water Standards														
Benzene	ug/L	2	HRL	5	MCL	<0.2	<0.2	<1.0	<1.0	**260**	<20	**190**	<20	<20	<20	<20	**120**	<20
n-Butylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
Chlorodibromoethane	ug/L	--		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Chloroethane	ug/L	--		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Chloroform	ug/L	30	HRL	--		<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
1,1-Dichloroethane	ug/L	--		--		<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<1.0
1,2-Dichloroethane	ug/L	4	HRL	5	MCL	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
1,1-Dichloroethene	ug/L	200	HRL	7	MCL	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
cis-1,2-Dichloroethene	ug/L	#N/A	HRL	#N/A	MCL	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
trans-1,2-Dichloroethene	ug/L	100	HRL	100	MCL	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<1.0
Dichlorodifluoromethane	ug/L	700	HBV	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	ug/L	--		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Ethylbenzene	ug/L	50	HBV	700	MCL	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Isopropylbenzene	ug/L	300	HRL	--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
p-Isopropyltoluene	ug/L	--		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Methylene chloride (Dichloromethane)	ug/L	5	HRL	5	MCL	**32.0**	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<0.50	<2.0
Naphthalene	ug/L	300	HRL	--		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Styrene	ug/L	--		100	MCL	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Tetrachloroethene (PCE)	ug/L	5	HRL	5	MCL	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
Tetrahydrofuran	ug/L	--		--		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	ug/L	200	HBV	1000	MCL	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
1,1,1-Trichloroethane	ug/L	9000	HRL	200	MCL	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
Trichloroethene (TCE)**	ug/L	0.4	HRL	5	MCL	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10	<1.0
1,2,4-Trimethylbenzene	ug/L	--		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
1,3,5-Trimethylbenzene	ug/L	100		--		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0
Vinyl Chloride **	ug/L	0.2	HRL	2	MCL	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
o-Xylene	ug/L	300	HRL	--		<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<1.0
p&m-Xylene	ug/L	300	HRL	--		<0.3	<0.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.30	<0.30	<1.0
Xylene (total)	ug/L	300	HRL	10000	MCL	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<0.50	<1.0

Notes:

Bold face - detect
* - due to new research, the MDH no longer recommends the HRL value
HBV - Health Based Values derived by Minnesota Department of Health
HRL - Health Risk Level derived and promulgated in rule by
Minnesota Department of Health (last update: May 18, 2010)
MCL - Maximum Contaminant Level (USEPA)
** = Compound laboratory method reporting limit sometimes greater than
HRL concentration

St. Louis Park Investigation
AECOM Project Number 60317420

Table 4
Groundwater Analytical Results
Monitoring Wells

Chemical	SLP-01	SLP-02	SLP-03	SLP-04	SLP-05	SPS-432**	W-21	W-121	W-129	W-129-A	W-130	W-132	Trip Blank	HRL	HBV	RAA
1,1,2-Trichloroethane	**37**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3	--	--
1,1-Dichloroethene	**3.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	--	--
1,2-Dichloroethane	**1.6**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1	--	--
Acetone	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	**190**	< 20.0	4000	--	--
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**63**	< 1.0	< 1.0	**2**	**2**	< 1.0	< 1.0	< 1.0	2	--	--
cis-1,2-Dichloroethene	< 1.0	**2.4**	**33**	**38**	< 1.0	**100**	< 1.0	**1.2**	< 1.0	< 1.0	**6.4**	< 1.0	< 1.0	50	--	--
Dichlorodifluoromethane	**11**	< 1.0	< 1.0	**1.7**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	--	--
Dichlorofluoromethane	**7.9**	**6.4**	< 1.0	**1.5**	< 1.0	< 1.0	< 1.0	**3.9**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NE	--	--
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**3.7**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	50	--	--
Methyl ethyl ketone (MEK)	< 10.0	< 10.0	< 10.0	< 10.0	**25**	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	4000	--	--
Methyl tertiary butyl ether (MTBE)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**3**	**3**	< 2.0	< 2.0	< 2.0	NE	NE	60
Naphthalene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.5**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	70	--	--
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**3.2**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	300	--	--
p&m-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.6**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	300	--	--
Tetrachloroethylene	< 1.0	< 1.0	**1.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5	--	--
trans-1,2-Dichloroethene	< 1.0	< 1.0	**2**	**4.4**	< 1.0	**6.7**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	40	--	--
Trichloroethene (TCE)	< 1.0*	< 1.0*	**3.6**	< 1.0*	**1.1**	< 1.0*	< 1.0*	< 1.0*	< 1.0*	< 1.0*	< 1.0*	< 1.0*	< 1.0*	5	0.4	--
Vinyl chloride	**20**	**4.8**	< 1.0*	**3.8**	< 1.0*	**100**	< 1.0*	**1.5**	< 1.0*	< 1.0*	< 1.0*	< 1.0*	< 1.0*	0.2	--	--

Notes

< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit
= Concentration exceeds HRL/HBV/RAA
HRL = Health Risk Limit established by MPCA
HBV = Health Based Value established by MPCA
RAA = Risk Assessment Advice established by MPCA
All compounds described in micrograms per liter (µg/L)
NE = Not Established
* = Laboratory reporting limit is greater than established groundwater standard (HRL/HBV)
** = SPS-432 is located in SPS Parking Lot
Only compounds detected are shown

Table 5
2015 Water Level Elevations

Well ID	Aquifer	MP Elevation	DTW Elevation	Water Level AMSL
P307	Drift	913.1	29.68	883.42
P308	Drift	923.29	40.22	883.07
P309	Drift	925.16	42.22	882.94
P310	Drift	921.48	39.39	882.09
W425	Drift	923.81	37.95	885.86
W426	Platteville	923.95	40.05	883.9
W427	Drift	919.4	37.69	881.71
W428	Platteville	919.4	37.70	881.7
W437	Platteville	913.18	29.20	883.98
W438	Platteville	921.12	39.09	882.03
W27	Platteville	910.47	26.31	884.16

Water level measurements are in feet
MP - measuring point elevation above mean sea level
DTW - depth to water from measuring point
AMSL - above mean sea level

STS Consultants, Ltd.

Table 6. Soil Vapor Survey Analytical Results

St. Louis Park Soil Vapor Survey

STS Project Number: 200605038

Chemical	CAS Number	CAS Number	Residential Intrusion Screening Value / Soil Gas Action Level (3)	Chronic Health Criteria (RfC or HRV)	Source	Cancer Risk based Criteria (RfC or HRV) *	Source	SVP-1 0895	SVP-2 1169	SVP-3 0882	SVP-4 0905	SVP-4 Duplicate #1027	SVP-5 0998	SVP-6 1000	SVP-6 Duplicate # 0921	SVP-7 1174	SVP-8 0876	SVP-9 0874	SVP-10 0892	SVP-11 1021
			[ug/m³]	[mg/m³]		[mg/m³]		[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]
Sample Lab ID:								1042348012	1042348011	1042348018	1042348014	1042348015	1042348013	1042348022	1042348026	1042348021	1042348025	1042348023	1042348019	1042348024
1	2	3	**4**	5	6	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Acetone	67641	67-64-1	**3.50E+02**	3.50E-01	(3)			2.38E+02 ESS	1.67E+02 ESS	1.74E+02 ESS	1.11E+02 ESS	1.70E+02 ESS	9.73E+01 ESS	1.09E+02 E	5.98E+01	9.77E+01	6.35E+01	8.55E+01 E	1.61E+02 ESS	7.15E+01
Benzene	71432	71-43-2	**1.30E+00**	3.00E-02	(1)	1.30E-03	(2)	**5.70E+00 SS**	**4.00E+00 SS**	**1.06E+01**	**4.90E+00 SS**	**5.70E+00 SS**	**5.20E+00 SS**	**2.63E+01**	**5.90E+00**	**1.24E+01**	**5.70E+00**	**6.20E+00**	1.01E+01 SS	**4.80E+00**
Bromodichloromethane	75274	75-27-4	**1.00E+00**	7.00E-02	(3)	1.00E-03	(3)													
2-Butanone (MEK)	78933	78-93-3	**5.00E+03**	5.00E+00	(3)			3.68E+01	2.64E+01	3.17E+01	2.49E+01	3.43E+01	2.15E+01	2.31E+01 SS	1.55E+01 SS	5.12E+01 SS	1.39E+01 SS	2.01E+01 SS	3.06E+01	1.65E+01 SS
Carbon disulfide	75150	75-15-0	**7.00E+02**	7.00E-01	(3)			6.30E+00	2.40E+00	3.70E+00	9.20E+00	4.70E+00	2.50E+00	5.90E+00 SS	3.70E+00 SS	4.00E+00 SS	2.80E+00 SS	2.20E+00 SS	1.70E+00	5.50E+00 SS
Carbon tetrachloride	56235	56-23-5	**2.00E+00**	4.00E-02	(3)	2.00E-03	(3)													
Chlorobenzene	108907	108-90-7	**6.00E+01**	6.00E-02	(3)															
Chloroform	67663	67-66-3	**1.00E+00**	3.00E-01	(3)	1.00E-03	(3)				**2.90E+00**	**3.20E+00**	**9.00E+00**						**2.50E+00**	
Cyclohexane	110827	110-82-7	**6.00E+03**	6.00E+00	(3)			7.70E+00	3.80E+00	7.60E+00	2.24E+01	2.67E+01	3.60E+00	6.90E+00	4.00E+00	1.32E+01	4.90E+00	5.10E+00	4.20E+00	4.50E+00
1,2-Dibromoethane	106934	106-93-4	**4.00E-02**	2.00E-04	(2)	4.00E-05	(3)													
1,1-Dichloroethane	75343	75-34-3	**5.00E+02**	5.00E-01	(3)															
cis-1,2-Dichloroethylene	156592	156-59-2	**3.50E+01**	3.50E-02	(3)															
trans-1,2-Dichloroethylene	156605	156-60-5	**7.00E+01**	7.00E-02	(3)															
Dichlorodifluoromethane (Freon 12)	75718	75-71-8	**2.00E+02**	2.00E-01	(3)			2.40E+00	3.30E+00	3.40E+00	2.35E+01	2.45E+01	3.50E+00	2.20E+00 SS		1.80E+00 SS	1.80E+00 SS	3.70E+00 SS	2.80E+00	
Dichlorotetrafluoroethane	1320372	1320-37-2																		
Ethylbenzene	100414	100-41-4	**2.20E+01**	1.00E+00	(3)	2.20E-02	(3)	6.70E+00	6.40E+00	1.65E+01	4.80E+00	6.50E+00	1.03E+01	1.43E+01	4.20E+00	9.00E+00	8.30E+00	7.50E+00	1.18E+01	9.60E+00
4-Ethyltoluene	622968	622-96-8	**NA**	NA	(3)							4.10E+00 SS	3.90E+00 SS						6.60E+00 SS	
n-Heptane	142825	142-82-5	**NA**	NA	(3)					1.00E+01				6.64E+01			5.10E+00	2.17E+01		
Hexane	110543	110-54-3	**7.00E+02**	7.00E-01	(3)		(1)	7.40E+00 SS	4.60E+00 SS	1.10E+01	5.10E+00 SS	7.40E+00 SS	2.90E+00 SS	5.16E+01	5.00E+00	1.72E+01	8.00E+00	1.20E+01	4.30E+00 SS	6.50E+00
2-Hexanone	591786	591-78-6	**NA**	NA	(3)			4.20E+00	2.70E+00				3.00E+00						3.10E+00	
Methylene chloride (dichloromethane)	75092	75-09-2	**5.20E+01**	4.00E-01	(3)	5.20E-02	(3)	2.60E+00 SS			2.20E+00 SS	2.30E+00 SS		1.50E+00		1.90E+00	1.80E+00	1.60E+00	2.50E+00 SS	
4-Methyl-2-pentanone (MIBK)	108101	108-10-1	**3.00E+03**	3.00E+00	(3)															
Propylene	115071	115-07-1	**3.00E+03**	3.00E+00	(3)			2.97E+01	2.75E+01		4.63E+01	4.56E+01	3.39E+01	5.24E+01	3.44E+01	4.15E+01		4.05E+01	4.02E+01	
Styrene	100425	100-42-5	**9.00E+02**	9.00E-01	(3)									2.00E+00						
1,1,2,2-Tetrachloroethane	79345	79-34-5	**4.00E-01**	2.10E-01	(3)	4.00E-04	(3)													
Tetrachloroethylene (PCE)	127184	127-18-4	**8.00E+00**	6.00E-01	(1)	8.00E-03	(3)	5.10E+00	5.20E+00	**2.52E+02 IS**	**6.84E+01**	**7.88E+01**	5.20E+00			**1.48E+01**		**1.14E+01**	**8.50E+00**	3.30E+00
Toluene	108883	108-88-3	**4.00E+02**	4.00E-01	(3)			1.64E+01	1.21E+01	2.17E+01	1.31E+01	1.83E+01	8.40E+00	4.29E+01	1.18E+01	3.14E+01	1.54E+01	1.74E+01	5.21E+01	1.60E+01
1,1,1-Trichloroethane	71556	71-55-6	**1.00E+03**	1.00E+00	(3)						9.30E+00	1.06E+01								
Trichloroethylene (TCE)	79016	79-01-6	**2.00E-01**	6.00E-01	(3)	2.00E-04	(3)				**2.32E+01**	**2.52E+01**	**1.12E+02**							
Trichlorofluoromethane	75694	75-69-4	**7.00E+02**	7.00E-01	(3)								2.00E+00							
1,1,2-Trichlorotrifluoroethane (CFC 113)	76131	76-13-1	**3.00E+04**	3.00E+01	(3)															
1,2,4-Trimethylbenzene	95636	95-63-6	**6.00E+00**	6.00E-03	(3)		(1)	**7.20E+00**		**8.30E+00**	**7.70E+00**	**9.00E+00**	**9.40E+00**	4.80E+00		**6.30E+00**			**1.33E+01**	
1,3,5-Trimethylbenzene	108678	108-67-8	**6.00E+00**	6.00E-03	(3)		(1)				4.30E+00								4.30E+00	
Xylene, m&p	108383	108-38-3	**1.00E+02**	1.00E-01	(3)			1.13E+01	6.40E+00	1.75E+01	1.07E+01	1.60E+01	1.38E+01	1.29E+01	5.00E+00	1.47E+01	6.10E+00	7.70E+00	3.80E+01	6.80E+00
Xylene, o	95476	95-47-6	**1.00E+02**	1.00E-01	(3)			4.30E+00	2.90E+00	4.50E+00	4.30E+00	5.90E+00	2.90E+00	4.20E+00	2.00E+00	5.20E+00	2.70E+00	3.60E+00	1.24E+01	3.00E+00

Notes:

(1) - Database from the USEPA's spreadsheet models incorporating the Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings (posted in 2004): http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm. These data are based on National Center for Environmental Assessment (NCEA) - these toxicological data are based on less strict scientific review compared to IRIS and are considered 3-year shelf life values.

(2) - Minnesota Department of Health Health Risk Value (HRV): http://www.health.state.mn.us/divs/eh/air/hrvtable.htm

(3) - Draft Residential Intrusion Screening Values for Vapor Intrusion Risk Evaluation - June 2006 Version, MPCA (received from Dr. Laura Solem)

* - Based on 1×10^{-5} risk slope factor

E - Analyte concentration exceeded the calibration range. The reported result is eliminated.

IS - The internal recovery associated with this result exceeds the lower control limit. The reported result should be considered an estimated value.

SS - This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value

1M - This analyte did not meet the secondary source verification criteria for the initial calibration.

4.05E+02 - Detected concentration exceeds Residential Intrusion Screening Value / MN Action Level

- Detected concentration exceeds Residential Intrusion Screening Value / MN Action Level ten times or more

STS Consultants, Ltd.

Table 6. Soil Vapor Survey Analytical Results

St. Louis Park Soil Vapor Survey

STS Project Number: 200605038

Chemical	CAS Number	CAS Number	Residential Intrusion Screening Value / Soil Gas Action Level (3)	Chronic Health Criteria (RfC or HRV)	Source	Cancer Risk based Criteria (RfC or HRV) *	Source
			[ug/m^3]	[mg/m^3]		[mg/m^3]	
Sample Lab ID:							
1	2	3	**4**	5	6	9	10
Acetone	67641	67-64-1	**3.50E+02**	3.50E-01	(3)		
Benzene	71432	71-43-2	**1.30E+00**	3.00E-02	(1)	1.30E-03	(2)
Bromodichloromethane	75274	75-27-4	**1.00E+00**	7.00E-02	(3)	1.00E-03	(3)
2-Butanone (MEK)	78933	78-93-3	**5.00E+03**	5.00E+00	(3)		
Carbon disulfide	75150	75-15-0	**7.00E+02**	7.00E-01	(3)		
Carbon tetrachloride	56235	56-23-5	**2.00E+00**	4.00E-02	(3)	2.00E-03	(3)
Chlorobenzene	108907	108-90-7	**6.00E+01**	6.00E-02	(3)		
Chloroform	67663	67-66-3	**1.00E+00**	3.00E-01	(3)	1.00E-03	(3)
Cyclohexane	110827	110-82-7	**6.00E+03**	6.00E+00	(3)		
1,2-Dibromoethane	106934	106-93-4	**4.00E-02**	2.00E-04	(2)	4.00E-05	(3)
1,1-Dichloroethane	75343	75-34-3	**5.00E+02**	5.00E-01	(3)		
cis-1,2-Dichloroethylene	156592	156-59-2	**3.50E+01**	3.50E-02	(3)		
trans-1,2-Dichloroethylene	156605	156-60-5	**7.00E+01**	7.00E-02	(3)		
Dichlorodifluoromethane (Freon 12)	75718	75-71-8	**2.00E+02**	2.00E-01	(3)		
Dichlorotetrafluoroethane	1320372	1320-37-2					
Ethylbenzene	100414	100-41-4	**2.20E+01**	1.00E+00	(3)	2.20E-02	(3)
4-Ethyltoluene	622968	622-96-8	**NA**	NA	(3)		
n-Heptane	142825	142-82-5	**NA**	NA	(3)		
Hexane	110543	110-54-3	**7.00E+02**	7.00E-01	(3)		(1)
2-Hexanone	591786	591-78-6	**NA**	NA	(3)		
Methylene chloride (dichloromethane)	75092	75-09-2	**5.20E+01**	4.00E-01	(3)	5.20E-02	(3)
4-Methyl-2-pentanone (MIBK)	108101	108-10-1	**3.00E+03**	3.00E+00	(3)		
Propylene	115071	115-07-1	**3.00E+03**	3.00E+00	(3)		
Styrene	100425	100-42-5	**9.00E+02**	9.00E-01	(3)		
1,1,2,2-Tetrachloroethane	79345	79-34-5	**4.00E-01**	2.10E-01	(3)	4.00E-04	(3)
Tetrachloroethylene (PCE)	127184	127-18-4	**8.00E+00**	6.00E-01	(1)	8.00E-03	(3)
Toluene	108883	108-88-3	**4.00E+02**	4.00E-01	(3)		
1,1,1-Trichloroethane	71556	71-55-6	**1.00E+03**	1.00E+00	(3)		
Trichloroethylene (TCE)	79016	79-01-6	**2.00E-01**	6.00E-01	(3)	2.00E-04	(3)
Trichlorofluoromethane	75694	75-69-4	**7.00E+02**	7.00E-01	(3)		
1,1,2-Trichlorotrifluoroethane (CFC 113)	76131	76-13-1	**3.00E+04**	3.00E+01	(3)		
1,2,4-Trimethylbenzene	95636	95-63-6	**6.00E+00**	6.00E-03	(3)		(1)
1,3,5-Trimethylbenzene	108678	108-67-8	**6.00E+00**	6.00E-03	(3)		(1)
Xylene, m&p	108383	108-38-3	**1.00E+02**	1.00E-01	(3)		
Xylene, o	95476	95-47-6	**1.00E+02**	1.00E-01	(3)		

Chemical	SVP-12 0900	SVP-13 0774	SVP-14 1132	SVP-15 0920	SVP-16 0896	SVP-17 1167	SVP-17 Duplicate # 0770	SVP-18 0907	SVP-19 1151	SVP-20 0908	SVP-21 1147	SVP-22 0773	Equipment Blank # 1101
	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]
Sample Lab ID:	1042348020	1042348007	1042348006	1042348010	1042348005	1042348004	1042348016	1042348003	1042348002	1042348001	1042348008	1042348009	1042348017
1	24	25	26	27	28	29	30	31	32	33	34	35	36
Acetone	7.55E+01	7.88E+01 1ME	9.40E+01	1.19E+02 ESS	1.75E+02 1ME	2.43E+01	1.55E+02 ESS	1.14E+02	1.66E+02 1ME	7.70E+01 1ME	1.98E+02 ESS	1.79E+02 ESS	2.59E+01
Benzene	**4.40E+00**	**8.90E+00 1M**	**6.20E+00 1M**	**6.50E+00 SS**	**5.40E+00 1M**	**6.20E+00 1M**	**1.09E+01 SS**	**2.89E+01 1M**	**4.80E+00 1ME**	**5.70E+00 1ME**	**1.43E+01 SS**	**5.30E+00 SS**	**1.60E+00**
Bromodichloromethane							**2.50E+00**	**3.80E+00**					
2-Butanone (MEK)	1.76E+01 SS	1.28E+01	2.60E+01	2.22E+01	2.60E+01	2.75E+01	1.35E+01	9.41E+01	3.52E+01	1.62E+01	2.88E+01	3.12E+01	5.00E+00 SS
Carbon disulfide	3.40E+00 SS	6.50E+00	5.50E+00	5.10E+00	4.40E+00	3.90E+00	3.50E+00	9.80E+00	2.30E+00	5.00E+00	3.20E+00	2.70E+00	1.60E+00 SS
Carbon tetrachloride							**2.30E+00**						
Chlorobenzene							2.10E+00						
Chloroform								**7.10E+00**		**1.70E+00**			
Cyclohexane	4.20E+00	6.40E+00	4.80E+00	5.70E+00	5.50E+00	5.20E+00	8.40E+00	1.83E+01	4.80E+00	6.30E+00	9.40E+00	5.00E+00	
1,2-Dibromoethane							**3.80E+00**						
1,1-Dichloroethane						2.10E+00	2.80E+00						
cis-1,2-Dichloroethylene						1.24E+01	9.60E+00						
trans-1,2-Dichloroethylene						2.07E+01	1.82E+01						
Dichlorodifluoromethane (Freon 12)		2.50E+00	2.20E+00	3.50E+00	1.25E+01	4.86E+01	4.44E+01	**8.06E+02**	2.40E+00	2.30E+00	3.30E+00	3.40E+00	1.90E+00 SS
Dichlorotetrafluoroethane							6.00E+00 SS						
Ethylbenzene	1.12E+01	9.40E+00	1.04E+01	1.06E+01	8.90E+00	9.70E+00	1.48E+01	1.41E+01	8.80E+00	8.20E+00	7.90E+00	9.60E+00	
4-Ethyltoluene		4.00E+00 1M					5.50E+00 SS	7.70E+00 1M					
n-Heptane		7.00E+00	4.60E+00			5.40E+00	9.10E+00	1.43E+01	4.60E+00	4.40E+00			
Hexane	6.50E+00	4.70E+00 1M	5.60E+00 1M	7.60E+00 SS	5.70E+00 1M		8.40E+00 SS	4.03E+01 1M	5.00E+00 1ME	5.60E+00 1ME	2.21E+01 SS	7.10E+00 SS	2.40E+00
2-Hexanone		3.40E+00				6.70E+00 1M	5.60E+00		5.80E+00		3.30E+00		
Methylene chloride (dichloromethane)		2.00E+00 1M	3.50E+00 1M	2.39E+01 SS	1.40E+00 1M	1.20E+00 1M	2.09E+01 SS	2.83E+01 1M		3.40E+00 1ME	5.40E+00 SS	3.10E+00 SS	7.00E+00
4-Methyl-2-pentanone (MIBK)								1.14E+02					
Propylene		3.89E+01		3.61E+01	2.66E+01	2.22E+01	2.04E+01	4.93E+02	2.19E+01		3.21E+01	3.82E+01	
Styrene		2.00E+00					3.00E+00	2.20E+00					
1,1,2,2-Tetrachloroethane							**4.80E+00**						
Tetrachloroethylene (PCE)	3.40E+00	**1.26E+02**	**6.05E+02**	**5.69E+01**	**1.65E+02**	**2.56E+03**	**2.68E+03**			3.70E+00	**2.15E+01**	**1.65E+01**	
Toluene	1.43E+01	2.15E+01	1.76E+01	1.80E+01	1.90E+01	1.57E+01	2.77E+01	4.69E+01	1.35E+01	1.61E+01	3.05E+01	1.52E+01	5.60E+00
1,1,1-Trichloroethane					3.40E+00								
Trichloroethylene (TCE)		**1.09E+01**	**1.63E+01**	**4.70E+00**	**4.18E+01**	**8.33E+02**	**9.00E+02**				**6.20E+00**	**4.00E+00**	
Trichlorofluoromethane				2.00E+00	1.38E+01	1.64E+01	1.58E+01	3.94E+01					
1,1,2-Trichlorotrifluoroethane (CFC 113)							4.00E+00 SS						
1,2,4-Trimethylbenzene	5.10E+00	**6.30E+00**	4.20E+00	4.90E+00	**6.70E+00**	4.90E+00	**8.90E+00**	**2.04E+01**		4.30E+00	5.30E+00	**6.60E+00**	
1,3,5-Trimethylbenzene							4.30E+00	4.50E+00					
Xylene, m&p	1.70E+01	1.36E+01	9.70E+00	1.10E+01	1.41E+01	1.49E+01	2.41E+01	3.33E+01	8.60E+00	1.20E+01	1.47E+01	1.02E+01	
Xylene, o	8.50E+00	5.50E+00	3.80E+00	6.80E+00	5.40E+00	6.00E+00	1.11E+01	1.22E+01	3.40E+00	4.70E+00	5.10E+00	4.30E+00	

Notes:

(1) - Database from the USEPA's spreadsheet models incorporating the Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings (posted in 2004): http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm. These data are based on National Center for Environmental Assessment (NCEA) - these toxicological data are based on less strict scientific review compared to IRIS and are considered 3-year shelf life values.

(2) - Minnesota Department of Health Health Risk Value (HRV): http://www.health.state.mn.us/divs/eh/air/hrvtable.htm

(3) - Draft Residential Intrusion Screening Values for Vapor Intrusion Risk Evaluation - June 2006 Version, MPCA (received from Dr. Laura Solem)

* - Based on $1x10^{-5}$ risk slope factor

E - Analyte concentration exceeded the calibration range. The reported result is eliminated.

IS - The internal recovery associated with this result exceeds the lower control limit. The reported result should be considered an estimated value.

SS - This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value

1M - This analyte did not meet the secondary source verification criteria for the initial calibration.

4.05E+02 - Detected concentration exceeds Residential Intrusion Screening Value / MN Action Level

- Detected concentration exceeds Residential Intrusion Screening Value / MN Action Level ten times or more

Table 6. Soil Gas Samples VOC Analytical Results
(only detected VOCs included)

Chemical	CAS Number	Residential 10 x ISVs (1)	Industrial 10 x ISVs (1)	VP-1, Tall Sales, 6714 Walker St.	VP-2, Tall Sales, 6714 Walker St.	VP-3, Tall Sales, 6714 Walker St.	VP-1, Eclipse Electric, 6512 Walker St.	VP-2, Eclipse Electric, 6512 Walker St.	VP-22 DUP, Eclipse Electric, 6512 Walker St.	VP-3, Eclipse Electric, 6512 Walker St.	VP-1, MiniValco, 3340 Gorham Ave.	VP-2, MiniValco, 3340 Gorham Ave.	VP-3, MiniValco, 3340 Gorham Ave.	VP-1, Lighting Plastics, 3326 Gorham Ave.	VP-2, Lighting Plastics, 3326 Gorham Ave.	VP-3, Lighting Plastics, 3326 Gorham Ave.	VP-33 DUP, Lighting Plastics, 3326 Gorham Ave.	VP Equipment Blank #1
		[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]	[ug/m^3]
Lab Sample ID:				1090436003	1090436002	1090436001	1090528004	1090528002	1090528003	1090528001	1090641001	1090616001	1090641002	1090641003	1090641004	1090641006	1090641007	1090641005
Column No.: 1	2	3	4															
Acetone	67-64-1	**3.10E+05**	**8.70E+05**	2.40E+01	3.14E+02	1.13E+02	5.04E+01		1.1E+01	2.25E+01		5.76E+01	5.54E+01	3.30E+01	1.43E+02	3.61E+01	1.66E+01	1.06E+01
Benzene	71-43-2	**4.50E+01**	**1.30E+02**	6.50E+00	3.11E+01	3.06E+01	4.80E+00		1.3E+01	6.40E+00	5.70E+00	8.80E+00	5.20E+00	6.40E+00	6.10E+00	3.00E+00	1.50E+00	1.30E+00
Bromodichloromethane	75-27-4	**NA**	**NA**							2.60E+00								
1,3-Butadiene	109-99-0	**3.00E+00**	**1.00E+01**															
2-Butanone (MEK)	78-93-3	**5.00E+04**	**1.00E+05**			1.29E+01	7.50E+00		2.2E+00	3.90E+00	3.10E+00		3.00E+00	6.00E+00	3.20E+00	1.60E+00	1.90E+00	1.50E+00
Carbon disulfide	75-15-0	**7.00E+03**	**2.00E+04**	8.00E+00	3.06E+01	7.40E+00	3.10E+00		9.6E-01	3.30E+00	1.10E+00	4.80E+00	3.50E+00	5.40E+00	2.10E+00	1.12E+01	1.10E+00	
Chloroform	67-66-3	**1.00E+03**	**3.00E+03**							1.06E+01		1.05E+01						
Chloromethane	74-87-3	**9.00E+02**	**3.00E+03**															9.20E-01
Cyclohexane	110-82-7	**6.00E+04**	**2.00E+05**	4.20E+00		1.19E+01	1.90E+00		2.9E+02	1.10E+01	4.80E+00	6.10E+00	4.00E+00	8.00E+00	6.00E+00	2.40E+00	1.10E+00	3.20E+00
1,3-Dichlorobenzene	541-73-1	**NA**	**NA**								1.69E+01	3.62E+01	3.44E+01					1.65E+01
1,4-Dichlorobenzene	106-46-7	**6.00E+02**	**2.00E+03**															
1,1-Dichloroethane	75-34-3	**5.00E+03**	**1.00E+04**															
1,2-Dichloroethane	107-06-2	**4.00E+00**	**1.00E+01**											1.60E+00				
1,1-Dichloroethene	75-35-4	**2.00E+03**	**6.00E+03**															
cis-1,2-Dichloroethylene	156-59-2	**NA**	**NA**						8.6E+01	5.80E+00								
trans-1,2-Dichloroethylene	156-60-5	**6.00E+02**	**2.00E+03**															
Dichlorodifluoromethane (Freon 12)	75-71-8	**2.00E+03**	**6.00E+03**	4.10E+00		2.80E+00	2.90E+00		2.3E+00	2.40E+00	5.90E+00	6.00E+00	2.80E+00	2.90E+00	2.50E+00	2.60E+00	2.50E+00	2.40E+00
Dichlorotetrafluoroethane	76-14-2	**NA**	**NA**															
Ethanol	64-17-5	**1.50E+05**	**4.20E+05**	1.09E+01	9.10E+00		3.84E+01			1.11E+01	2.72E+01	3.12E+01	2.11E+01	4.15E+01	2.72E+01	2.94E+01	9.40E+00	8.10E+00
Ethyl acetate	141-78-6	**3.00E+04**	**8.00E+04**															
Ethylbenzene	100-41-4	**1.00E+04**	**3.00E+04**	7.80E+00	1.33E+01	1.13E+01	5.20E+00		6.1E+00	8.40E+00	8.30E+00	1.02E+01	6.30E+00	7.50E+00	8.30E+00	4.90E+00	3.20E+00	1.90E+00
4-Ethyltoluene	622-96-8	**NA**	**NA**				1.09E+01			3.10E+00	4.90E+00	7.80E+00	7.50E+00	9.80E+00	7.60E+00	4.60E+00	3.40E+00	3.40E+00
n-Heptane	142-82-5	**NA**	**NA**	8.30E+00	3.83E+01	2.58E+01	3.30E+00		1.0E+01	9.50E+00	7.20E+00	1.18E+01	6.10E+00	1.05E+01	8.90E+00	3.50E+00	1.60E+00	2.20E+00
Hexane (n-Hexane)	110-54-3	**2.00E+04**	**6.00E+04**	1.14E+01	6.26E+01	4.11E+01	5.70E+00		3.8E+01	1.38E+01	1.03E+01	1.51E+01	9.80E+00	1.75E+01	1.30E+01	5.10E+00	2.00E+00	3.60E+00
2-Hexanone	591-78-6	**NA**	**NA**	8.20E+00	2.27E+01	1.63E+01	6.10E+00			1.00E+01	5.40E+00	9.10E+00	4.60E+00	7.60E+00	1.29E+01	2.80E+00	2.00E+00	1.80E+00
Methylene chloride (dichloromethar	75-09-2	**2.00E+02**	**6.00E+02**				1.80E+00	**9.76E+02**		3.30E+00	3.00E+00		3.90E+00			1.00E+00	1.10E+00	1.58E+01
4-Methyl-2-pentanone (MIBK)	108-10-1	**3.00E+04**	**8.00E+04**				1.70E+00											
Naphthalene	91-20-3	**9.00E+01**	**3.00E+02**															
2-Propanol	67-63-0	**7.00E+04**	**2.00E+05**				1.62E+01				2.19E+02	5.27E+02	4.18E+01	4.01E+01	3.35E+02		3.90E+00	
Propylene	115-07-1	**3.00E+04**	**8.00E+04**		3.18E+02	2.36E+02	7.70E+01					7.31E+01	4.10E+01					
Tetrachloroethylene (PCE)	127-18-4	**2.00E+02**	**6.00E+02**	4.10E+00	**1.11E+03**	**2.46E+02**	**2.05E+03**	**2.07E+05**	**1.23E+06**	**2.80E+04**	7.00E+00	6.20E+00		6.90E+00	2.70E+00	2.93E+01	3.11E+01	
Tetrahydrofuran	109-99-9	**NA**	**NA**															
Toluene	108-88-3	**5.00E+04**	**1.00E+05**	3.95E+01	6.21E+01	5.65E+01	3.02E+01		3.4E+01	5.05E+01	3.60E+01	2.83E+01	2.57E+01	2.50E+01	3.09E+01	1.57E+01	1.03E+01	1.20E+01
1,1,1-Trichloroethane	71-55-6	**5.00E+04**	**1.00E+05**						6.4E+00	2.49E+01		1.39E+01	4.70E+00	2.76E+01				
1,2,4-Trichlorobenzene	120-81-1	**7.00E+01**	**2.00E+02**															
Trichloroethylene (TCE)	79-01-6	**3.00E+01**	**8.00E+01**		**3.11E+01**				**8.17E+02**	**5.08E+01**	**8.10E+01**	**9.18E+02**	**3.56E+01**	**1.81E+02**		2.20E+00		
Trichlorofluoromethane	75-69-4	**7.00E+03**	**2.00E+04**	1.80E+00								1.90E+00	1.50E+00					
1,2,4-Trimethylbenzene	95-63-6	**7.00E+01**	**2.00E+02**	1.08E+01	1.12E+01	1.38E+01	4.06E+01		8.9E+00	1.33E+01	1.75E+01	2.69E+01	2.38E+01	3.38E+01	2.57E+01	1.39E+01	1.51E+01	1.34E+01
1,3,5-Trimethylbenzene	108-67-8	**6.00E+01**	**2.00E+02**			3.70E+00				3.40E+00								
Vinyl acetate	108-05-4	**2.00E+03**	**6.00E+03**															
Xylene, m&p	108-38-3	**1.00E+03**	**3.00E+03**	1.77E+01	2.13E+01	2.12E+01	2.05E+01		1.7E+01	2.67E+01	1.73E+01	2.10E+01	1.25E+01	1.47E+01	1.51E+01	1.08E+01	7.90E+00	7.70E+00
Xylene, o	95-47-6	**1.00E+03**	**3.00E+03**	5.90E+00	7.50E+00	7.70E+00	7.10E+00		9.0E+02	9.00E+00	5.40E+00	6.60E+00	4.30E+00	5.20E+00	5.00E+00	3.60E+00	2.60E+00	2.50E+00

Notes:

(1) - Intrusion Screening Values (ISVs) for Vapor Intrusion Risk Evaluation (February 2009 Version, MPCA - http://www.pca.state.mn.us/publications/aq1-36.xls) multiplied by a factor of 100 - these ISV x 100 values are to be used to screen soil vapor data collected outside of a building's footprint

E - Analyte concentration exceeded the calibration range. The reported result is elimitated.

IS - The internal recovery associated with this result exceeds the lower control limit. The reported result should be considered an estimated

NA - no toxicity data available

ND - Below Laboratory Report Limit

SS - This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value

1M - This analyte did not meet the secondary source verification criteria for the initial calibration.

4.05E+02 - Detected concentration exceeds Residential ISV x 10

4.05E+02 - Detected concentration exceeds Industrial ISV x 10

Table 6. Soil Gas Samples VOC Analytical Results
(only detected VOCs included)

Chemical	CAS Number	Residential 10 x ISVs (1)	Industrial 10 x ISVs (1)	VP-1, Family Digest, 7008 Walker St.	VP-2, Family Digest, 7008 Walker St.	VP-3, Family Digest, 7008 Walker St.	VP-1, Pampered Pooch, 7020 Walker St.	VP-2, Pampered Pooch, 7020 Walker St.	VP-3, Pampered Pooch, 7020 Walker St.	VP-1, Kaufenberg, 6225 37th St. W.	VP-2, Kaufenberg, 6225 37th St. W.	VP-3, Kaufenberg, 6225 37th St. W.	VP-1, Ace Supply, 6425 Oxford St.	VP-1 DUP, Ace Supply, 6425 Oxford St.	VP-2, Ace Supply, 6425 Oxford St.	VP-3, Ace Supply, 6425 Oxford St.	VP-1, Care Cleaners, 6528 Lake St. W.	VP-2, Care Cleaners, 6528 Lake St. W.
		[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]
Lab Sample ID:				1092045002	1092045001	1092045003	1092185001	1092269002	1092269001	1092269003	1092382005	1092382006	1092382002	1092382003	1092382001	1092382004	1092380001	1092380002
Column No.: 1	2	3	4															
Acetone	67-64-1	3.10E+05	8.70E+05	4.26E+01	1.52E+01	1.14E+02	2.48E+01	8.59E+01	2.13E+01	4.22E+01	3.14E+01	4.04E+01	9.38E+01	8.51E+01	2.58E+01	4.00E+01	4.55E+01	3.37E+01
Benzene	71-43-2	4.50E+01	1.30E+02	5.60E+00	4.50E+00	4.80E+00	1.80E+00	5.70E+00	4.70E+00	1.20E+01	4.50E+00	7.50E+00	1.40E+00	9.90E-01	1.30E+00	4.90E+00	7.90E+00	5.80E+00
Bromodichloromethane	75-27-4	NA	NA															
1,3-Butadiene	109-99-0	3.00E+00	1.00E+01														**3.70E+00**	2.70E+00
2-Butanone (MEK)	78-93-3	5.00E+04	1.00E+05	1.24E+01	4.10E+00	9.00E+00		4.90E+00	3.70E+00	2.34E+01	3.50E+00	4.90E+00	7.20E+00		4.50E+00	5.60E+00	1.25E+01	5.71E+01
Carbon disulfide	75-15-0	7.00E+03	2.00E+04	4.30E+00	7.90E+00	3.50E+00	2.30E+00		3.60E+00	1.33E+01	1.80E+00	3.10E+00	2.00E+00	1.30E+00	1.70E+00	4.50E+00	5.40E+00	2.50E+00
Chloroform	67-66-3	1.00E+03	3.00E+03															2.40E+00
Chloromethane	74-87-3	9.00E+02	3.00E+03															
Cyclohexane	110-82-7	6.00E+04	2.00E+05	3.90E+00	9.40E+00	2.90E+00	7.00E+00	2.61E+01	3.40E+00		4.50E+00	6.90E+00				2.60E+00	6.60E+00	5.40E+00
1,3-Dichlorobenzene	541-73-1	NA	NA	2.02E+01	1.42E+01	1.58E+01			1.39E+01	1.29E+01						3.53E+01	2.60E+01	2.79E+01
1,4-Dichlorobenzene	106-46-7	6.00E+02	2.00E+03													3.60E+01		
1,1-Dichloroethane	75-34-3	5.00E+03	1.00E+04										1.40E+00					
1,2-Dichloroethane	107-06-2	4.00E+00	1.00E+01															
1,1-Dichloroethene	75-35-4	2.00E+03	6.00E+03															9.20E+00
cis-1,2-Dichloroethylene	156-59-2	NA	NA									1.10E+00						1.07E+04
trans-1,2-Dichloroethylene	156-60-5	6.00E+02	2.00E+03															1.40E+00
Dichlorodifluoromethane (Freon 12)	75-71-8	2.00E+03	6.00E+03	2.40E+00	2.00E+00	2.40E+00	3.90E+00	2.52E+01	1.90E+00	2.20E+00	1.70E+00	2.00E+00	8.31E+01	1.65E+02	5.05E+01	3.30E+00	2.30E+00	2.00E+00
Dichlorotetrafluoroethane	76-14-2	NA	NA					1.00E+01				8.30E+00	1.02E+01		2.76E+01			
Ethanol	64-17-5	1.50E+05	4.20E+05	1.03E+02	7.22E+01	5.86E+01	3.98E+01	2.26E+01	9.90E+00	1.54E+01	1.28E+01	2.09E+01	8.50E+00	9.90E+00	1.11E+01	1.03E+01	6.70E+00	1.30E+01
Ethyl acetate	141-78-6	3.00E+04	8.00E+04	2.50E+00		5.50E+00					1.20E+00							
Ethylbenzene	100-41-4	1.00E+04	3.00E+04	1.26E+01	7.60E+00	2.17E+01	1.80E+00	8.20E+00	5.00E+00	1.03E+01	4.80E+00	9.60E+00	2.30E+00	2.20E+00	2.30E+00	1.14E+01	1.04E+01	9.00E+00
4-Ethyltoluene	622-96-8	NA	NA			9.40E+00			3.40E+00	3.60E+00						7.30E+00		4.80E+00
n-Heptane	142-82-5	NA	NA	7.80E+00	6.30E+00	5.50E+00	3.00E+00	1.10E+01	4.80E+00	1.11E+01	4.70E+00	8.90E+00	1.90E+00	1.40E+00	1.40E+00	4.80E+00	1.02E+01	8.80E+00
Hexane (n-Hexane)	110-54-3	2.00E+04	6.00E+04	8.10E+00	2.57E+01	7.40E+00	1.47E+01	9.63E+01	1.04E+01	2.06E+01	8.00E+00	1.66E+01	2.80E+00	2.10E+00	2.10E+00	7.90E+00	1.57E+01	1.11E+01
2-Hexanone	591-78-6	NA	NA	3.08E+01	1.74E+01	2.10E+01	3.80E+00	9.50E+00	9.70E+00	9.10E+00	7.70E+00	1.32E+01	7.90E+00	1.04E+01	6.90E+00	2.31E+01	2.46E+01	2.14E+01
Methylene chloride (dichloromethar	75-09-2	2.00E+02	6.00E+02	1.40E+00		2.89E+01	1.87E+02	**1.24E+03**	2.24E+01	7.80E+00	1.37E+01	2.90E+00		1.70E+00		1.40E+00		1.10E+00
4-Methyl-2-pentanone (MIBK)	108-10-1	3.00E+04	8.00E+04	2.50E+00						8.40E+00			2.80E+00					1.20E+00
Naphthalene	91-20-3	9.00E+01	3.00E+02	1.17E+01		4.70E+00						4.60E+00				3.80E+00		2.52E+01
2-Propanol	67-63-0	7.00E+04	2.00E+05	7.28E+01	1.67E+01	2.33E+01		3.92E+01	8.30E+00	1.35E+01	4.90E+01	2.80E+01	4.34E+02	3.72E+02	5.17E+01	8.26E+01	1.24E+01	1.06E+01
Propylene	115-07-1	3.00E+04	8.00E+04	1.59E+01		1.24E+01		3.02E+01	4.88E+01	8.10E+01	1.60E+01	2.27E+01	8.10E+00	6.60E+00	5.80E+00	1.63E+01	3.88E+01	2.60E+01
Tetrachloroethylene (PCE)	127-18-4	2.00E+02	6.00E+02	5.43E+01		2.00E+00		1.53E+02		4.00E+00	2.20E+00	3.23E+01	1.27E+01	2.73E+01	5.92E+01	5.23E+01	**5.13E+02**	**1.74E+04**
Tetrahydrofuran	109-99-9	NA	NA	2.30E+00		7.60E+00		8.00E+00	1.60E+00	4.50E+00	2.10E+00	4.20E+00	1.30E+00			2.20E+00	2.90E+00	2.70E+00
Toluene	108-88-3	5.00E+04	1.00E+05	1.22E+02	7.23E+01	9.82E+01	3.12E+01	3.96E+01	4.16E+01	3.85E+01	2.56E+01	3.53E+01	1.48E+01	1.78E+01	1.82E+01	5.01E+01	4.62E+01	3.78E+01
1,1,1-Trichloroethane	71-55-6	5.00E+04	1.00E+05												1.80E+00	7.90E+00		
1,2,4-Trichlorobenzene	120-81-1	7.00E+01	2.00E+02															
Trichloroethylene (TCE)	79-01-6	3.00E+01	8.00E+01		1.70E+00		**5.08E+02**		2.90E+00			**4.92E+01**	7.10E+00	1.38E+01	1.07E+01	**3.78E+01**		**3.47E+02**
Trichlorofluoromethane	75-69-4	7.00E+03	2.00E+04										2.12E+02	4.31E+02	2.15E+02	2.60E+00		
1,2,4-Trimethylbenzene	95-63-6	7.00E+01	2.00E+02	5.70E+00		3.99E+01		1.43E+01	1.55E+01	1.39E+01	8.90E+00	1.20E+01		4.40E+00	6.70E+00	2.91E+01	1.93E+01	2.00E+01
1,3,5-Trimethylbenzene	108-67-8	6.00E+01	2.00E+02			1.56E+01			4.30E+00									3.50E+00
Vinyl acetate	108-05-4	2.00E+03	6.00E+03											6.20E+00	1.90E+00			
Xylene, m&p	108-38-3	1.00E+03	3.00E+03	2.71E+01	1.33E+01	8.09E+01	4.90E+00	1.94E+01	1.28E+01	1.04E+01	5.60E+00	7.60E+00	2.40E+00	3.00E+00	3.60E+00	1.35E+01	9.90E+00	1.04E+01
Xylene, o	95-47-6	1.00E+03	3.00E+03	7.50E+00	3.70E+00	1.93E+01		3.90E+00	4.10E+00	4.30E+00	2.30E+00	3.20E+00		1.40E+00	1.50E+00	6.00E+00	3.80E+00	3.90E+00

Notes:

(1) - Intrusion Screening Values (ISVs) for Vapor Intrusion Risk Evaluation (February 2009 Version, MPCA - http://www.pca.state.mn.us/publications/aq1-36.xls) multiplied by a factor of 100 - these ISV x 100 values are to be used to screen soil vapor data collected outside of a building's footprint

E - Analyte concentration exceeded the calibration range. The reported result is elimitated.

IS - The internal recovery associated with this result exceeds the lower control limit. The reported result should be considered an estimated

NA - no toxicity data available

ND - Below Laboratory Report Limit

SS - This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value

1M - This analyte did not meet the secondary source verification criteria for the initial calibration.

4.05E+02 - Detected concentration exceeds Residential ISV x 10

$\boxed{\textbf{4.05E+02}}$ - Detected concentration exceeds Industrial ISV x 10

St. Louis Park VOC Investigation
AECOM Project Number: 04660024

Table 6. Soil Gas Samples VOC Analytical Results (only detected VOCs included)

Chemical	CAS Number	Residential 10 x ISVs (1)	Industrial 10 x ISVs (1)	VP-3, Care Cleaners, 6528 Lake St. W.	VP-1, Techna Graphics, 6500 Lake St. W.	VP-2, Techna Graphics, 6500 Lake St. W.	VP-3, Techna Graphics, 6500 Lake St. W.	VP-1 Bryant Graphics, 6504 Walker St.	VP-2 Bryant Graphics, 6504 Walker St.	VP-1 Prof. Instruments, 6824 Lake St. W.	VP-2 Prof. Instruments, 6824 Lake St. W.	VP-3 Prof. Instruments, 6824 Lake St. W.
		[ug/m³]	**[ug/m³]**	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]	[ug/m³]
Lab Sample ID:				1094372001	1094372002	1094372003	1094469001	1094469002	1094598001	1094598002	1094693002	1094693001
Column No.: 1	2	3	4									
Acetone	67-64-1	**3.10E+05**	**8.70E+05**		2.73E+02	2.10E+01	2.73E+01	2.06E+01	2.55E+01	2.53E+01	1.21E+01	1.78E+01
Benzene	71-43-2	**4.50E+01**	**1.30E+02**	3.70E+00			4.00E+00		9.40E-01	4.00E+00	4.90E+00	2.90E+00
Bromodichloromethane	75-27-4	**NA**	**NA**									
1,3-Butadiene	109-99-0	**3.00E+00**	**1.00E+01**					1.50E+00				
2-Butanone (MEK)	78-93-3	**5.00E+04**	**1.00E+05**	7.40E+00	7.87E+01	2.30E+00	6.40E+00	4.20E+00	6.10E+00	7.90E+00	3.00E+00	4.40E+00
Carbon disulfide	75-15-0	**7.00E+03**	**2.00E+04**	1.30E+00			1.60E+00		3.80E+00	9.70E-01	1.00E+00	1.30E+00
Chloroform	67-66-3	**1.00E+03**	**3.00E+03**								4.00E+00	2.41E+01
Chloromethane	74-87-3	**9.00E+02**	**3.00E+03**	1.10E+00								
Cyclohexane	110-82-7	**6.00E+04**	**2.00E+05**	3.20E+00			2.90E+00			3.10E+00	6.30E+00	2.19E+01
1,3-Dichlorobenzene	541-73-1	**NA**	**NA**				5.90E+00	1.02E+01				
1,4-Dichlorobenzene	106-46-7	**6.00E+02**	**2.00E+03**									
1,1-Dichloroethane	75-34-3	**5.00E+03**	**1.00E+04**					1.20E+00				
1,2-Dichloroethane	107-06-2	**4.00E+00**	**1.00E+01**									
1,1-Dichloroethene	75-35-4	**2.00E+03**	**6.00E+03**									
cis-1,2-Dichloroethylene	156-59-2	**NA**	**NA**									
trans-1,2-Dichloroethylene	156-60-5	**6.00E+02**	**2.00E+03**									
Dichlorodifluoromethane (Freon 12	75-71-8	**2.00E+03**	**6.00E+03**	3.00E+00		2.50E+00	3.20E+00	1.60E+00	2.80E+00	3.60E+00	2.70E+00	2.30E+00
Dichlorotetrafluoroethane	76-14-2	**NA**	**NA**									
Ethanol	64-17-5	**1.50E+05**	**4.20E+05**	1.85E+02	5.47E+01	1.16E+01	3.90E+00	4.50E+00	9.10E+00	8.90E+00	6.70E+00	4.60E+00
Ethyl acetate	141-78-6	**3.00E+04**	**8.00E+04**									
Ethylbenzene	100-41-4	**1.00E+04**	**3.00E+04**	5.50E+00		1.70E+00	1.09E+01	1.30E+00	2.30E+00	9.90E+00	1.21E+01	5.20E+00
4-Ethyltoluene	622-96-8	**NA**	**NA**				4.00E+00					
n-Heptane	142-82-5	**NA**	**NA**	6.50E+00			4.30E+00		1.20E+00	4.50E+00	6.40E+00	7.30E+00
Hexane (n-Hexane)	110-54-3	**2.00E+04**	**6.00E+04**	3.70E+00			6.00E+00		1.80E+00	6.70E+00	1.18E+01	1.89E+01
2-Hexanone	591-78-6	**NA**	**NA**							4.00E+00	4.00E+00	
Methylene chloride (dichloromethar	75-09-2	**2.00E+02**	**6.00E+02**	1.30E+00		9.60E-01						
4-Methyl-2-pentanone (MIBK)	108-10-1	**3.00E+04**	**8.00E+04**									
Naphthalene	91-20-3	**9.00E+01**	**3.00E+02**				6.30E+00	4.60E+00				4.80E+00
2-Propanol	67-63-0	**7.00E+04**	**2.00E+05**	8.90E+02	2.17E+02	7.32E+01	1.10E+01	1.61E+01	1.58E+01	2.26E+01	9.40E+00	1.03E+01
Propylene	115-07-1	**3.00E+04**	**8.00E+04**	8.30E+00				3.70E+00				1.08E+01
Tetrachloroethylene (PCE)	127-18-4	**2.00E+02**	**6.00E+02**	2.63E+01				1.65E+02	6.20E+00	**3.62E+03**	**1.48E+03**	1.35E+02
Tetrahydrofuran	109-99-9	**NA**	**NA**									
Toluene	108-88-3	**5.00E+04**	**1.00E+05**	2.00E+01	2.33E+01	2.80E+00	1.25E+01	3.00E+00	3.00E+00	1.11E+01	1.35E+01	7.10E+00
1,1,1-Trichloroethane	71-55-6	**5.00E+04**	**1.00E+05**								4.30E+00	2.30E+00
1,2,4-Trichlorobenzene	120-81-1	**7.00E+01**	**2.00E+02**				6.50E+00	5.50E+00				
Trichloroethylene (TCE)	79-01-6	**3.00E+01**	**8.00E+01**								1.90E+00	4.80E+00
Trichlorofluoromethane	75-69-4	**7.00E+03**	**2.00E+04**				2.00E+00	1.50E+00				6.30E+00
1,2,4-Trimethylbenzene	95-63-6	**7.00E+01**	**2.00E+02**	9.50E+00		4.90E+00	1.07E+01	6.80E+00	3.90E+00			
1,3,5-Trimethylbenzene	108-67-8	**6.00E+01**	**2.00E+02**									
Vinyl acetate	108-05-4	**2.00E+03**	**6.00E+03**									
Xylene, m&p	108-38-3	**1.00E+03**	**3.00E+03**	2.01E+01		3.50E+00	1.06E+01	5.30E+00	3.30E+00	4.00E+00	6.20E+00	3.60E+00
Xylene, o	95-47-6	**1.00E+03**	**3.00E+03**	6.50E+00		1.40E+00	4.00E+00	2.30E+00	1.30E+00	1.70E+00	2.20E+00	

Notes:

(1) - Intrusion Screening Values (ISVs) for Vapor Intrusion Risk Evaluation (February 2009 Version, MPCA - http://www.pca.state.mn.us/publications/aq1-36.xls) multiplied by a factor of 100 - these ISV x 100 values are to be used to screen soil vapor data collected outside of a building's footprint

E - Analyte concentration exceeded the calibration range. The reported result is elimitated.

IS - The internal recovery associated with this result exceeds the lower control limit. The reported result should be considered an estimated

NA - no toxicity data available

ND - Below Laboratory Report Limit

SS - This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value

1M - This analyte did not meet the secondary source verification criteria for the initial calibration.

4.05E+02 - Detected concentration exceeds Residential ISV x 10

4.05E+02 - Detected concentration exceeds Industrial ISV x 10

Table 6
Temporary Soil Vapor Boring Analytical Results
St. Louis Park Solvent Plume - Former Flame Metals - St. Louis Park, Minnesota
Concentrations are Reported in Micrograms per Cubic Meter
Partial Listing - Only Compounds Detected are Listed

			Collection Location/Comparison Criteria	**Taft/10x Res. ISV**						**Flame/10x Ind. ISV**	
			Sample Identification	VP-1	VP-2	VP-3	VP-4	DUP-VP-4	VP-5	SB-1-VP	SB-3-VP
			PID Reading Following Sample Collection (in ppm)	<1.0	1.2	NA	7.0	7.0	12	<1.0	<1.0
			Date Collected	2/5/14	2/5/14	2/5/14	2/5/14	2/5/14	2/5/14	2/5/14	2/5/14
Compound	**10x Res. ISV**	**10x Ind. ISV**	**Acute ISV**								
1,2,4-Trimethylbenzene	**70**	**200**	**NE**	**5.80**	**2.70**	<1.4	**3.80**	**5.20**	**6.90**	**2.90**	<2.3
1,3,5-Trimethylbenzene	**60**	**200**	**NE**	<1.4	<1.5	<1.4	<1.3	**1.80**	<1.3	<2.3	<2.3
1,3-Butadiene	**3.00**	**10**	**NE**	**16.1**	**8.70**	**2.40**	<0.60	<0.60	<0.60	<1.0	<1.0
2-Butanone (MEK)	**50,000**	**100,000**	**10,000**	**11.1**	**4.40**	**1.60**	**10.0**	**5.80**	**30.4**	**11.0**	**15.5**
4-Ethyltoluene	**NE**	**NE**	**NE**	**3.70**	**1.60**	<1.4	**2.10**	**2.20**	**4.40**	<2.3	<2.3
Acetone	**310,000**	**87,000**	**60,000**	**48.9**	**25.2**	**6.10**	<0.64	<0.64	**66.2**	**49.7**	**64.2**
Benzene	**45**	**130**	**1,000**	**14.0**	**7.30**	**2.40**	**13.8**	**24.9**	**42.0**	**8.30**	**4.80**
Carbon disulfide	**7,000**	**20,000**	**6,000**	<0.88	<0.94	<0.91	**2.20**	**3.80**	**3.90**	**4.80**	**6.10**
Chloromethane	**900**	**3,000**	**1,000**	<0.58	<0.63	**1.00**	<0.56	<0.56	<0.56	<0.96	<0.96
Cyclohexane	**60,000**	**200,000**	**NE**	**20.2**	**2.00**	<1.0	**9.10**	**15.6**	**168**	**4.00**	**3.40**
Dichlorodifluoromethane	**2,000**	**6,000**	**NE**	**1.80**	**1.90**	**1.80**	<1.4	<1.4	<1.4	<2.3	<2.3
Ethanol	**150,000**	**420,000**	**180,000**	**6.00**	**4.50**	**2.80**	**13.4**	<0.51	**10.0**	<0.87	**6.50**
Ethyl acetate	**30,000**	**80,000**	**40,000**	**19.8**	**7.10**	<1.1	<0.98	<0.98	**21.1**	**36.0**	**13.2**
Ethylbenzene	**10,000**	**30,000**	**10,000**	**8.20**	**2.60**	<1.3	**3.60**	**5.80**	**34.4**	**5.60**	<2.0
Methylene Chloride	**200**	**600**	**10,000**	**1.90**	<1.1	**1.10**	**88.7**	<0.95	<0.95	**26.7**	**11.1**
Naphthalene	**90**	**300**	**NE**	**5.70**	**3.30**	**10.3**	**4.30**	**2.20**	**2.10**	<2.5	<2.5
Propylene	**30,000**	**80,000**	**NE**	<0.49	<0.52	**12.7**	<0.47	**658**	<0.47	<0.80	<0.80
Styrene	**10,000**	**30,000**	**21,000**	**5.00**	**3.40**	<1.3	**3.30**	**4.10**	**3.50**	**4.00**	<2.0
Tetrachloroethene	**200**	**600**	**20,000**	**1.70**	**2.70**	<0.99	**1.10**	**2.00**	<0.92	**6.20**	**1.60**
Toluene	**50,000**	**100,000**	**37,000**	**17.3**	**5.80**	**1.60**	**13.2**	**21.0**	**115**	**14.4**	**5.90**
m&p-Xylene	**1,000**	**3,000**	**43,000**	**15.5**	**5.10**	<2.5	**7.40**	**13.0**	**54.9**	**7.80**	<4.0
n-Heptane	**NE**	**NE**	**NE**	**22.6**	**3.10**	<1.2	**21.0**	**37.4**	**277**	**6.20**	<1.9
n-Hexane	**20,000**	**60,000**	**NE**	**3.50**	**2.50**	<1.0	**78.0**	**83.0**	**75.9**	**9.40**	**7.30**
o-Xylene	**1,000**	**3,000**	**43,000**	**8.20**	**2.30**	<1.3	**3.00**	**5.40**	**24.2**	**2.90**	<2.0

Notes
PID = photoionization detector
ppm = parts per million
NA = No vapor flowing to photoionization detector. Some sediment is likely clogging soil vapor tubing.
< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit
Taft = a soil vapor sample advanced on Taft Avenue South right-of-way and compared to Res. ISV criteria
Flame = a soil vapor sample advanced on the Former Flame Metals property and compared to Ind. ISV criteria
10x Res. ISV = Ten times the residential intrusion screening value for vapor intrusion risk evaluation
10x Ind. ISV = Ten times the industrial intrusion screening value for vapor intrusion risk evaluation
Acute ISV = Acute intrusion screening value for vapor intrusion risk evaluation
= Concentration exceeds the applicable 10x ISV
NE = criteria not established
* = Laboratory reporting limit is greater than established criteria

Table 6
Temporary Soil Vapor Boring Analytical Results

Chemical	CAS #	Temp VP-1A (4/18/14)	Temp VP-1 (4/18/14)	Temp VP-2 (4/18/14)	Industrial 100x ISVs	Acute ISV
Ethylbenzene	100-41-4	**17.9**	**20.3**	**2.7**	300,000	10,000
Styrene	100-42-5	<1.5	<1.5	<1.5	300,000	21,000
Benzyl chloride	100-44-7	<1.8	<1.8	<1.8	300	240
cis-1,3-Dichloropropene*	10061-01-5	<1.5	<1.5	<1.6	6000	NE
trans-1,3-Dichloropropene*	10061-02-6	<1.5	<1.5	<1.6	6000	NE
1,4-Dichlorobenzene	106-46-7	<2.0	<2.0	<2.1	20,000	10,000
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	<2.6	<2.6	<2.7	6	NE
1,3-Butadiene	106-99-0	<0.76	<0.76	<0.78	100	NE
1,2-Dichloroethane	107-06-2	**8.5**	**9.5**	<0.71	100	NE
Vinyl acetate	108-05-4	<1.2	<1.2	<1.2	60,000	NE
4-Methyl-2-pentanone (Methyl isobutyl ketone, MIBK)	108-10-1	<1.4	1.7	<1.4	800,000	NE
m&p-Xylene**	179601-23-1	**9.0**	**9.9**	**4.7**	30,000	43,000
1,3,5-Trimethylbenzene	108-67-8	<1.7	<1.7	<1.7	2000	NE
Toluene (Methylbenzene)	108-88-3	**26.8**	**44.9**	**49.3**	1,000,000	37,000
Chlorobenzene	108-90-7	<1.6	<1.6	<1.6	10,000	NE
Tetrahydrofuran	109-99-9	<1.0	<1.0	<1.0	NE	NE
n-Hexane	110-54-3	**18.1**	**38.3**	**10.5**	600,000	NE
Cyclohexane	110-82-7	**10.4**	**19.8**	**5.0**	2,000,000	NE
Propylene (Methylethylene)	115-07-1	**84.2**	<0.59	**38.7**	800,000	NE
1,2,4-Trichlorobenzene	120-82-1	<4.2	<4.2	<4.3	1000	NE
Dibromochloromethane	124-48-1	<2.9	<2.9	<3.0	NE	NE
Tetrachloroethylene (PCE)	127-18-4	**145000**	**94800**	**1360**	6000	20,000
Ethyl acetate	141-78-6	<1.2	<1.2	<1.3	800,000	40,000
n-Heptane	142-82-5	**11.7**	**23.7**	**3.1**	NE	NE
cis-1,2-Dichloroethene	156-59-2	**14.2**	**18.7**	**2.1**	20,000	NE
trans-1,2-Dichloroethene	156-60-5	<1.4	<1.4	<1.4	20,000	800
Methyl-tert-butyl ether (MTBE)	1634-04-4	<1.2	<1.2	<1.3	800,000	7,000
1,3-Dichlorobenzene	541-73-1	<2.0	<2.0	<2.1	NE	NE
Carbon tetrachloride	56-23-5	<1.1	<1.1	<1.1	200	1,900
2-Hexanone	591-78-6	<1.4	<1.4	<1.4	NE	NE
4-Ethyltoluene	622-96-8	<1.7	**1.7**	<1.7	NE	NE
Ethanol	64-17-5	<1.6	**13.1**	**8.4**	4,200,000	180,000
2-Propanol (Isopropyl alcohol)	67-63-0	**10.8**	<2.1	**59.6**	2,000,000	3,200
Acetone	67-64-1	<40.6	<40.6	<42.0	8,700,000	60,000
Chloroform	67-66-3	<1.7	<1.7	<1.7	30,000	150
Benzene	71-43-2	**11.4**	**25.5**	**3.5**	1300	1,000
1,1,1-Trichloroethane (Methyl chloroform)	71-55-6	**133**	**145**	<1.9	1,000,000	140,000
Bromomethane (Methyl bromide)	74-83-9	<1.3	<1.3	<1.4	1000	2,000
Chloromethane (Methyl chloride)	74-87-3	<0.71	<0.71	<0.73	30,000	1,000
Chloroethane (Ethyl chloride)	75-00-3	<0.91	<0.91	<0.94	3,000,000	100,000
Vinyl chloride	75-01-4	<0.44	<0.44	<0.45	300	180,000
Methylene Chloride (Dichloromethane)	75-09-2	<5.9	**16.3**	**6.2**	6000	10,000
Carbon disulfide	75-15-0	**6.3**	**12.9**	**6.9**	200,000	6,000
Bromoform	75-25-2	<3.5	<3.5	<3.7	3000	NE
Bromodichloromethane	75-27-4	<2.3	<2.3	<2.4	NE	NE
1,1-Dichloroethane	75-34-3	<1.4	<1.4	<1.4	100,000	NE
1,1-Dichloroethene (DCE)	75-35-4	<1.4	1.5	<1.4	60,000	NE
Trichlorofluoromethane (Freon 11)	75-69-4	<1.9	**2.0**	<2.0	200,000	NE
Dichlorodifluoromethane (Freon 12)	75-71-8	**2.0**	**2.6**	**2.0**	60,000	NE
1,1,2-Trichlorotrifluoroethane (CFC-113)	76-13-1	<2.7	<2.7	<2.8	8,000,000	NE
Dichlorotetrafluoroethane	76-14-2	<2.4	<2.4	<2.5	NE	NE
1,2-Dichloropropane	78-87-5	<1.6	<1.6	<1.6	1000	200
2-Butanone (Methyl ethyl ketone, MEK)	78-93-3	**8.2**	**14.7**	**4.3**	1,000,000	10,000
1,1,2-Trichloroethane	79-00-5	<0.92	<0.92	<0.96	200	NE
Trichloroethylene (TCE)	79-01-6	**170**	**184**	**6.4**	600	2,000
1,1,2,2-Tetrachloroethane	79-34-5	<1.2	<1.2	<1.2	100	NE
Hexachloro-1,3-butadiene	87-68-3	<9.1	<9.1	<9.4	100	NE
Naphthalene	91-20-3	<4.5	<4.5	<4.6	3000	NE
o-Xylene**	95-47-6	**74.5**	**55.1**	**1.7**	30,000	43,000
1,2-Dichlorobenzene	95-50-1	<2.0	<2.0	<2.1	60,000	NE
1,2,4-Trimethylbenzene	95-63-6	**2.9**	**3.6**	<1.7	2000	NE

NOTES:
ISV - Intrusion Screening Value
established by MPCA
< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit
(yellow highlight) = Concentration exceeds Industrial 100x ISVs or Acute ISV
* based on 1,3-Dichloropropene cas # 542-75-6
** based on total xylenes cas # 1330-20-7
NE - Not Established
All compound concentrations displayed in μg/m³

Table 7
Industrial Indoor and Sub-Slab Vapor Sampling Exceedences

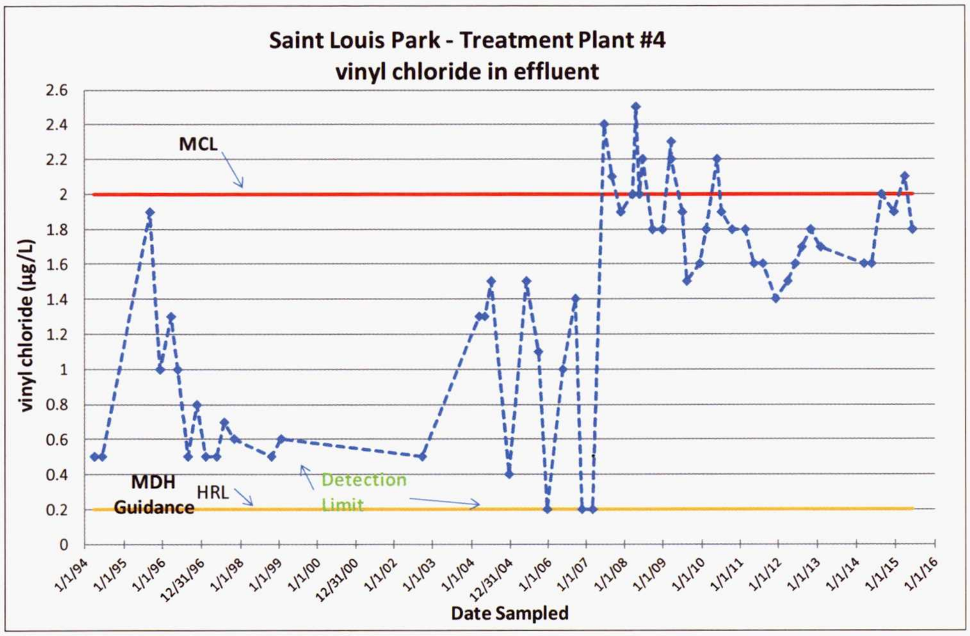
		Exceedance Values			Marathon 3356 Gorham Ave			Minvalco 3340 Gorham			Tall Sales 6714 Walker	Audio by Design 6518 Walker Street	Bryant Graphics 6500 Walker Street	
Chemical	**CAS #**	**Industrial ISV**	**10x Industrial ISV**	**Acute ISV**	**SSV-MN**	**SSV-MS**	**MIA-2**	**MVSS-2**	**MVSS-4**	**MVIA-3**	**TSSS-3**	**SSV-2**	**SSV-15**	**SV-16**
				Date:	12/16/2014	12/16/2014	3/31/2015	3/9/2015	3/9/2015	3/31/2015	3/10/2014	3/26/2014	5/28/2014	5/28/2014
Tetrachloroethylene (PCE)	127-18-4	30	300	20,000	<6.0	<6.0	<0.99	<1.2	<1.2	**1.7**	**20.6**	**4220**	**3090**	**2930**
2-Propanol (Isopropyl alcohol)	67-63-0	20,000	200,000	3,200	**142**	**125**	**3.4**	**19.7**	**75.7**	**250**	**6510**	**582**	**4020**	**8820**
Methylene Chloride (Dichloromethane)	75-09-2	60	600	10,000	**6.5**	**16.4**	**405**	**608**	**43.8**	**102**	**8.7**	**5.2**	**18.5**	**13.1**
Trichloroethylene (TCE)	79-01-6	6	60	2,000	**249**	**250**	**1.4**	**8.4**	**108**	**7.4**	**2.1**	**37.6**	**32.9**	**103**

NOTES:

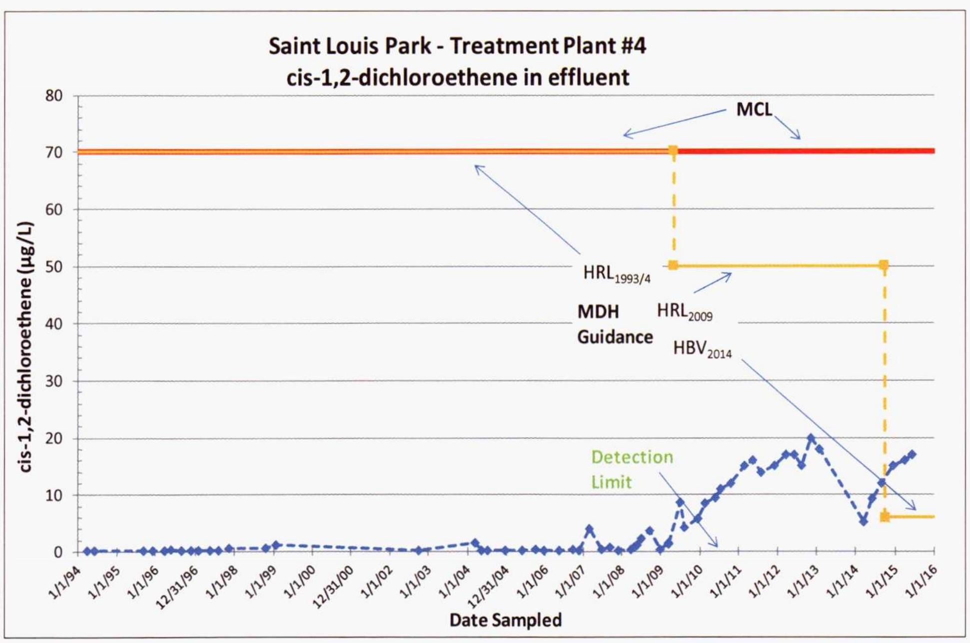
< = Less than Laboratory Reporting Limit
BOLD Text indicates result is above reporting limit

All compound concentrations displayed in μg/m^3

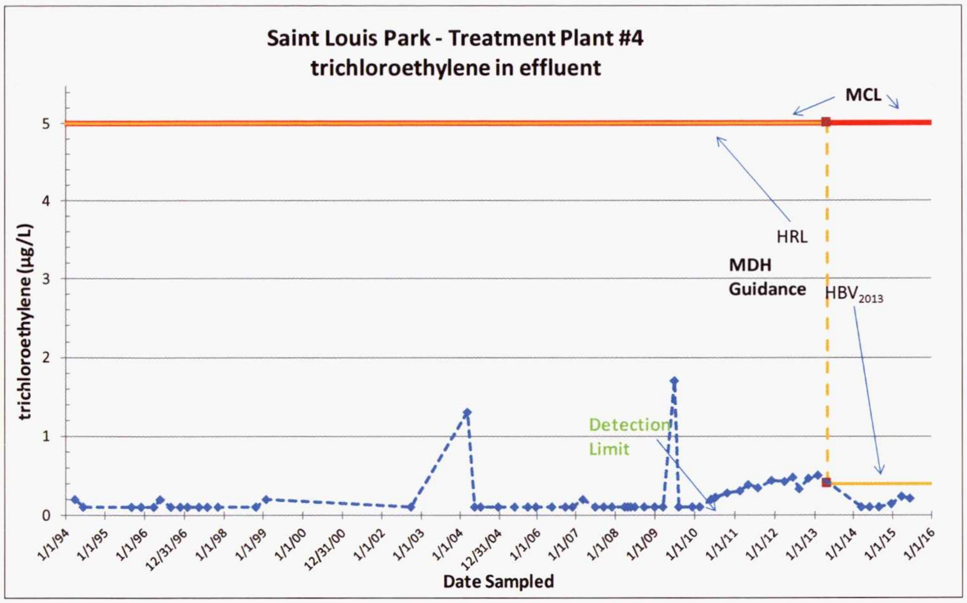
APPENDIX A
St. Louis Park Treatment Plant #4 Effluent Concentrations



Saint Louis Park - Treatment Plant #4
vinyl chloride in effluent
vinyl chloride (µg/L)
MCL
MDH
Guidance
HRL
Detection
Limit
Date Sampled



Saint Louis Park - Treatment Plant #4
cis-1,2-dichloroethene in effluent
cis-1,2-dichloroethene (µg/L)
MCL
HRL1993/4
HRL2009
HBV2014
MDH
Guidance
Detection
Limit
Date Sampled


Saint Louis Park - Treatment Plant #4
trichloroethylene in effluent
MCL
HRL
MDH
Guidance
HBV2013
Detection
Limit
trichloroethylene (µg/L)
5
4
3
2
1
0
1/1/94
1/1/95
1/1/96
12/31/96
1/1/98
1/1/99
1/1/00
12/31/00
1/1/02
1/1/03
1/1/04
12/31/04
1/1/06
1/1/07
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
1/1/13
1/1/14
1/1/15
1/1/16
Date Sampled

Appendix B
City of Edina
Potential Contaminant Source Inventory
(Edina Municipal Well E7)

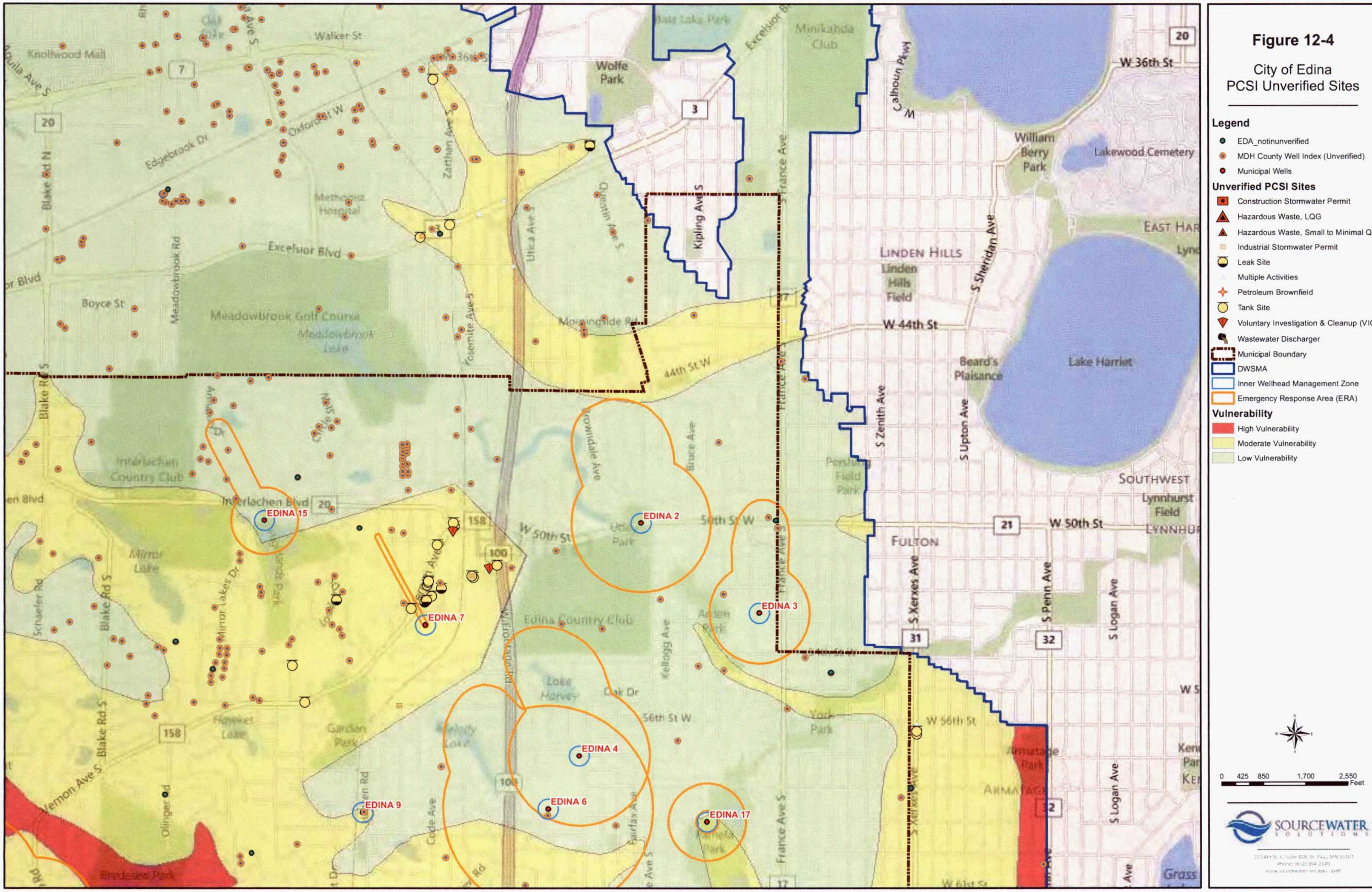


Figure 12-4
City of Edina
PCSI Unverified Sites
Legend
EDA_notinunverified
MDH County Well Index (Unverified)
Municipal Wells
Unverified PCSI Sites
Construction Stormwater Permit
Hazardous Waste, LQG
Hazardous Waste, Small to Minimal QG
Industrial Stormwater Permit
Leak Site
Multiple Activities
Petroleum Brownfield
Tank Site
Voluntary Investigation & Cleanup (VIC)
Wastewater Discharger
Municipal Boundary
DWSMA
Inner Wellhead Management Zone
Emergency Response Area (ERA)
Vulnerability
High Vulnerability
Moderate Vulnerability
Low Vulnerability
0 425 850 1,700 2,550
Feet
SOURCEWATER SOLUTIONS
EDINA 15
EDINA 2
EDINA 3
EDINA 7
EDINA 4
EDINA 6
EDINA 9
EDINA 17
Knollwood Mall
Walker St
Wolfe Park
Edgebrook Dr
Methodist Hospital
Excelsior Blvd
Boyce St
Meadowbrook Golf Course
Meadowbrook Lake
Morningside Rd
44th St W
Interlachen Country Club
Interlachen Blvd
W 50th St
Edina Country Club
Lake Harvey
Oak Dr
56th St W
Mirror Lake
Garden Park
Bredesen Park
W 36th St
William Berry Park
Lakewood Cemetery
Linden Hills
W 44th St
Beard's Plaisance
Lake Harriet
Southwest
Lynnhurst Field
Fulton
W 50th St
W 56th St
Armatage Park
W 61st St
France Ave
S Xerxes Ave
S Penn Ave
S Logan Ave
S Upton Ave
S Zenith Ave
S Sheridan Ave
Kipling Ave S
Utica Ave S
Yosemite Ave S
Blake Rd S
Vernon Ave S
Kellogg Ave
Bruce Ave

www.ghd.com